improving the quality of physical therapy

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KEYNOTE-SPEAKERS

IMPROVING THE QUALITY OF METHODOLOGY IN CLINICAL TRIALS OF PHYSICAL THERAPY

L.M. Bouter

Although the potential of randomized trials (RCTs) to supply valid answers is much greater than that of uncontrolled or non-randomized studies, most RCTs investigating the efficacy of physical therapy have major flaws in their methodology. Their predominantly disappointing results could be partly caused by the heterogeneity of study populations, interventions and effect measures within these trials. Furthermore, the considerable number of negative outcomes might, at least, be partly due to small sample sizes.

The first flaw arises from the fact that patients for RCTs are often selected on the basis of vague diagnoses, like lumbago or frozen shoulder. In order to define homogeneous groups of patients, prognostically relevant factors have to be identified. Trials within these groups would give a better idea of the value of a physical therapy intervention.

The second flaw consists of an incomplete description of the nature of the interventions used. The great variety of operationalizations might explain some of the inconsistent outcomes of studies with the same research question. Furthermore, lack of information about the execution of the intervention at issue makes it generally impossible to identify optimal dosages.

The third flaw concerns the lack of outcome measures in physical therapy that are valid, precise and responsive. In many RCTs strong doubts arise regarding these desiderata. Failure to detect a clinically relevant treatment effect can easily be a consequence, which might explain at least some of the negative physical therapy trials.

The fourth flaw has to do with the commonly very small sample sizes. In these trials only very large effects can be detected at the conventional levels of statistical significance. Before concluding that there is probably no difference in effect, one should always take the power of the trials into account.

The presentation will discuss these methodological flaws and will provide examples of successful attempts at prevention. The development of a study protocol for a RCT on the effects of physiotherapy and corticosteroid injections in capsulitis of the shoulder will serve to illustrate the problems that may have to be solved in order to design a physiotherapy trial without major methodological flaws.

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BEHAVIORAL SCIENCE AND PHYSICAL THERAPY

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Successful treatment in physical therapy frequently requires patients to change their behavior. The interface of behavioral science and physical therapy is therefore a highly relevant area of research. Although highly appropriate, research in this area is rather limited. The interface of behavioral science and physical therapy is poorly conceptualized.
The goal of the present paper is to describe this interface. Three main areas in this interface are indentified:

a) To a certain extent, behavioral science and physical therapy are concerned with the same kind of disorders (e.g. pain).
b) Frequently, disorders are caused or maintained by the interaction of factors typically belonging to the behavioral or physical therapeutical domain, respectively (e.g. both negative affect and muscle strength determine pain and disability in osteoarthritis patients).
c) Treatment in physical therapy may improve from the application of theories on and methods for behavioral change (e.g. increasing compliance with exercise therapy by the application of principles of operant- and self-regulation theory).

Each of these areas is described and an example of relevant research is given. It is argued that research on the interface of behavioral science and physical therapy should be given a high priority.

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PHYSICAL THERAPY DIAGNOSIS

P.J.M. Helders

Our profession is facing many questions today; questioning the effects of our interventions is just one of them. The most basic one concerns physiotherapy itself. As today, we have not succeeded in establishing our identity and character, nor our theory on which our practice is based and the methods and tools by which it is carried out. Crucial for physiotherapy as a profession, is having its own specific diagnostics. At this moment, the diagnostics of the physiotherapist are almost completely related to the treatment procedure used in a particular patient. Physiotherapy diagnosis as practised today is merely a summing up of an orthopedic assessment, neurologic procedures, manuel therapy techniques, cyriax manoeuvres. NDT components, and by that seems to be dependent of the view the therapist holds. Does it reflect the specificity, the uniqueness and identifiable body that goes with a professional diagnostic procedure? If we are not capable of giving an own, specific, not to any treatment related, but to our body of knowledge related statement concerning the health status of the patient, than we really have to put the question: Is physiotherapy just a technique of is it really a profession? By raising that question we automatically are dealing with issues like responsibility for treatment, access to physiotherapists, the technicians versus the professionals discussion etc.

Why do we have so much difficulties in developing our own diagnostics? There are three main reasons. First of all, physiotherapy is composed of several forms of therapies and modalities, all subsuming under three main categories: exercise therapy, massage therapy and the physiotherapy modalities like electrotherapy. There is hardly any interlinking theory and or therapy specificity. Secondly, we have to consider the historical course of physiotherapy. There has been a strong influence from orthopedic medicine and neurology. This strong influence from orthopedics and neurology is still reflected in the physiotherapy diagnostic procedure, as there still is a sub-division in a neurological and in a orthopedic assessment. The third and by far the most important reason for not having our own specific diagnostics, is the fact that there still is no coherent theory of physiotherapy backed up with a well-defined philosophy of care to provide the basis for this. This lacking of a coherent theory of physiotherapy undeniably has its impact on the scientific merits, and by that, on the development of new, scientific sound interventions.

It follows that diagnostics in physiotherapy should be based on a problem-solving behaviour, as the patient's complaints, the medical diagnosis, and the phsyiotherapy diagnosis should have a certain degree of correlation. If there is no correlation found, the question whether treatment by a physiotherapist should be started is justified.

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STANDARDS AND GUIDELINES: CONTINUOUSLY CHALLENGING THE STATUS QUO

J.M. McIntosh

Physiotherapy, like much of health care over the past 30 years, has moved through periods of time when our clinical decision making has been characterized in different ways. The treatment based day by day protocols and routines were replaced by a more laissez aller approach, and then to an era of "assessment and accountability" with standards and guidelines. This new era has witnessed an "information explosion" with more rapid development of new therapies, tests and procedures, at the same time as societal concerns are raised about some of the marginal benefits and increasing costs of health care.

Standards and guidelines have been put forward as tools to assist in clinical decision making and to improve the quality and efficiency of care. As such, they are also a technology and questions about criteria for their development, ongoing evaluation and improvement are essential. More than several methodologies exist for developing them and the different approaches possibly reflect the differences or changes in fundamental values that influence clinical practice. The global subjective method contrasts with an evidence-based approach, and the more quantitative outcomes-based approach may, in the future, receive more pressure from the less common preference-based approach. The shift in methodology may also incorporate less of a provider and interventionist perspective, and more of a patient and health problem focused, systems, approach.

The production and availability of standards and guidelines does not necessarily ensure their application or result in any useful change in clinical practice, patient benefits or health care costs. The involvement of key stake-holders in the developmental process for any standards and guidelines might influence their acceptability and utilization but it might also be necessary to increase our understanding of the determinants of physiotherapy decision making and action as well as have knowledge of the necessary conditions for enabling change in clinical behaviour.

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UNDERSTANDING THE BASICS OF PHYSICAL THERAPY: THE MAIN CONDITION FOR IMPROVING QUALITY OF CARE

R.A.B. Oostendorp

For some years the development, implementation, and assessment of quality systems for the improvement of physical therapy care are receiving considerable attention. Improving the quality of physical therapy care is not easy due to the implicit character of many physical theraputic interventions, or in other words the often non-transparent character of the process and the product.
The following basic elements of the product 'physical therapy' can be identified at the level of analysis and intervention:

Analysis

- the movement system should be considered a system that can be studied at the cellular, tissue, organ, and organ system level, independently and in their interdependent relationship;
- continued 'threats' of physiological regulating systems, related to the movement system, can result in local dysregulation (cellular, tissue or organ level), and spinal-segmental or supraspinal level (organ systems in their interdependent affinity);
- complaints of the functioning of the movement system can be studied at the level the person in relation to the person, or in relation to his environment;
- the health problem in relation to the movement system can be studied at the level of tissues, organs, and organ systems (impairments), or abilities and skills (disabilities) and of the person in relation to his environment (handicaps);
- the development of a health problem, related to the movement system, is not only studied from the biomedical point of view but also multifactorial according to the model stress-(physical, physiological, and psychological) and adaptability (loadability vs. capability/capacity);
- the continued presence of a health problem usually points to a dys-regulation at one or more levels of the movement system e.g. segmental dysregulation and dysregulation in movement coordination;
- inadequate anticipation (coping) of observed or experienced 'threats' from the person or from the environment constitute a substantial threat for the physiological regulating mechanisms involved in repair/recovery;

Intervention

- stimuli which are part of the physical therapist's armamentarium (in a narrow sense; mechanical, thermal, electrical and chemical, and in a broader sense visual, auditory, tactile, kinaesthetic, verbal and non-verbal) can be applied and they are thought to influence many physiological regulation systems;

- these stimuli are derived from exercise therapy, massage therapy, electro-therapy, behavioral therapy and counseling, and are applied based on the physical therapy diagnostic process;
- the purpose of the application of the mentioned therapeutic stimuli is to improve the transition from dysregulation to normalized regulation and the increase of the general and regional stress/adaptability level of the person or movement system;
- the choice of characteristics of the stimuli is determined by the type and level of dysregulation (tissue and organ indepedently, tissues and organs in their interdependent segmental relationship, skills in their interdependent relation, person in relation to himself and his environment);
- the amount of arousal determines the strength of a response to the applied stimuli (arousal concerns the fluctuations in physiological and psychological reactions and regulating mechanisms);
- continuous long-term arousal increases and reinforces the stimulus-response relationship.

The understanding of these basic elements contributes to physical therapy science which is based on a synthesis of knowledge from elements of biomedical, behavioral and social sciences, combined with insight in the process and product of 'physical therapy'.

The understanding of the fundamentals of physical therapy science is the basis for the assessment of the quality of the physical therapy. Improvements in the quality of physical therapy can not be limited to the identification of aspects concerning the organization of a department or a clinic such as waiting time and accessibility, but should also look at efficiency and effectiveness.

The discussion about the quality aspects 'efficiency and effectiveness' of the process and product physical therapy can only be fruitfully conducted if there is a sufficient knowledge and insight into physical therapy care. Process evaluation is mandatory for the quality aspect efficiency, product evaluation for effectiveness.

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N=1 METHODOLOGY WITH PARTICULAR REFERENCE TO STROKE REHABILITATION

M.J. Riddoch

N = 1 methodology has developed as an complimentary method to the group study approach as a method of assessing the efficacy of therapy. A problems with the standard group study approach is that contradictory results are often reported; for instance, Wertz et al. (1986) observed that patients treated by speech therapists had a better outcome than those receiving no treatment. On the other hand, Lincoln et al. (1984) found no difference in the improvement of groups receiving and not receiving speech therapy. These and other similar conflicting results have led writers to conclude that convincing evidence concerning the therapeutic usefulness of stroke rehabilitation does not yet exist (Dobkin, 1989). There are a number of problems with applying the group study approach to a clinical population. For instance: Patient groups are often heterogeneous with regard to the severity of the condition; premorbid factors may influence recovery; time post onset of the acute phase is frequently not controlled etc. In addition to these factors, no account appears to have been taken as to the degree of spontaneous recovery (Freemantle, Pollock, Sheldon, Mason, Song, Long et al., 1992). However, a meta-analysis of 36 clinical trials led Ottenbacker and Jannel (1993) to argue that treatment effects for stroke rehabilitation programs are evident if proper techniques are used to identify and synthesise clinical trials but that a number of questions remain to be answered. These questions include: Are certain programs better for certain patients? When should treatment be initiated to achieve maximum benefit? How long do the effects of treatment last? I shall argue that these questions may best be answered by the application of N = 1 methodology into standard treatment programs.

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SCIENCE AND PRACTICE: EXAMINING OUTCOMES

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Physical therapy practice has been traditionally guided by historical precedents, the views of authorities, tenacity, and a priori judgements that may or may not have been based on extrapolations from scientific literature. Physical therapy has proceeded without the benefit of tests of efficacy or effectiveness. Anecdotal arguments predominate in most discussions of physical therapy practice, just as they do in many areas of medical practice.

As physical therapists worldwide assume greater responsibility within health care delivery systems there is a need for the development of a scientific basis for practice. There is also a need for the refinement of practice. Research is needed not just to validate practice but rather to also eliminate ineffective and inefficient practice behaviors.

Confusion, however, exists regarding the methods that can be used to examine practice. Too often research fousing on mechanisms is presumed to justify treatments. Studies of outcome are critical for the improvement of practice and for the development of the profession.

The contention of this author is that physical therapy needs effectiveness studies and that such studies can be undertaken even before we conduct efficacy studies. Effectiveness studies can be differentiated from efficacy studies in that the former focus on outcomes in the context of real world clinical settings. Efficacy studies tradionally require greater constrains and are often epitomized by double blind randomized controlled trials.

Effectiveness studies, which can be equally credible as efficacy studies, therefore, allow us to examine whether our treatments work in the context in which they are given and provide evidence for the use or discontinuation of treatments. When effectiveness studies proceed efficacy studies significant benefits may be gained, but this author also recognizes the possibility some information will be lost and that it will at times be more difficult to determine which aspects of treatment are most critical.

Because physical therapy practice needs to be guided by data based decisions efficacy and effectiveness studies are both desperately needed, but neither will provide useful data unless meaningful outcome measures are used. Traditional use of measurements of impairments to judge outcomes must give way to the use of disability focused measures that reflect the true value of physical therapy interventions. The author suggests there are two central issues we must consider in planning a research agenda; the need for effectiveness studies and the need to use meaningful measurements of outcome.

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LECTURES

IMPROVEMENT OF PHYSIOTHERAPY QUALITY THROUGH EDUCATION AND CERTIFICATION

H.E. Askes, B.L. Stegwee, H.W.A. Wams

Introduction

Postgraduate education is an important means to improve the quality of physiotherapy. In The Netherlands many different activities in this field are organized by many institutions. The program of the Institute for Research and Postgraduate Education in Physiotherapy (SWSF) consists of approximately 45 different courses in which on a yearly basis about 2500 physiotherapist participate. The topics of the courses can be categorized in six clusters: patient categories, patients' complaints, therapy modalities, methods/protocols, science & research, and the integration of the bodies of knowledge relevant to physiotherapists. Since the start the criteria 'quality' has been a central issue in choosing the topics, structuring the basics of each course, and in the organizing process. Aspects that were given much attention were in particular the methodical way of working which the physiotherapist should apply, the necessary interdisciplinary cooperation with regard to the topic of the course, the way to record the patients' assessment data, and patient education.

Since quality has become a central issue in health care, the institutions organizing postgraduate courses for health professions seriously have to consider the implications of government policy on quality with respect to their courses. The question is, which criteria, and by whom, should be applied to postgraduate education activities?

Methods

SWSF has adopted the so-called FUNDES methodology for its educational program. The FUNDES methodology stands for FUNctional DESign methodology and is developed by the Polytechnical University of Twente. This has been adapted to the SWSF conditions for developing postgraduate courses. The FUNDES methodology contains a three phase model consisting of analysis, structure, and programming. Following this model a set of quality criteria can be derived. Next, the aspects as defined by the National Council for Public Health will be linked to quality indicators which can be measured and evaluated.

Results

The results are two sets of quality criteria for postgraduate education in physiotherapy. One from the FUNDES methodology, and one from relating the quality criteria to the aspects of quality of care as defined by the National Council for Public Health.

The criteria are important to assess the quality of postgraduate courses which is highly interesting for the professional physiotherapy organizations, since they are legally supposed to assure the quality of postgraduate

education. Secondly, the relation between criteria for postgraduate education in health care and health care itself will possibly become clear.

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PHYSICAL EXAMINATION OF THE KNEE, DIAGNOSTIC VALUES OF SOME TESTS

G. Aufdemkampe

Introduction

Physical therapists examine patients in order to come to a specific diagnosis. We decided to examine some widely used diagnostic procedures for knee pathology.

Methods

Twenty patients were first examined manually by a physical therapist and thereafter arthroscopically by an orthopaedic surgeon. A total of 24 diagnosis were given by the physical therapist and the orthopaedic surgeon. A postiori the sensitivity (sens), specificity (spec), false positives (FP), false negatives (FN), positive predictive value (PPV) and negative predictive value (NPV) of the manual tests were calculated. It was assumed that the arthroscopical diagnosis was the 'golden standard'.

Results

TEST	SENS.	F.N.P.	P.V.	SPEC.	F.P.	N.P.V.
Mc Murray I	100%	0%	80%	83,3%	16,7%	100%
Mc Murray II	50%	50%	33,3%	88,9%	11,1%	94,1%
Pivot shift	0%	100%	0%	82,4%	17,6%	82,4%
Gravity test	100%	0%	100%	100%	0%	100%

Conclusions

The overall percentage of agreement between the physical therapists diagnoses and the diagnoses by means of the arthroscope is 70.8%. If one considers 80% of agreement as a minimum level of overall agreement, the physical therapists diagnoses are not very accurate.

The low sensitivity of the Mc Murray II test is due to the fact that only two patients had a lesion of the lateral meniscus on arthroscopy, while only one being diagnosed by the physical therapist.

In general it appears that a physical therapist is better in excluding a possible cause (rather high levels of specificity and negative predictive value) than in stating the exact cause (lower levels of sensitivity and positive predictive value). The only exception being the gravity test which has a perfect score.

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PHYSICAL THERAPY FOR PATIENTS WITH PAIN

M.E. van Baar, J. Dekker

Introduction

A treatment model is formulated, based on the principle that a physical therapy treatment should consist of a phase in wich conditions are created for physiologic recovery followed by a phase directed towards the recovery of function. Four more detailed expectations were tested:

1. In the early phases of treatment, the treatment goals 'pain reduction', 'reduction of swelling' and 'regulating of muscle tone' are chosen relatively frequent.
2. As the treatment progresses, the treatment goals 'improvement of muscle strength', 'improvement of function of joints', 'improvement of stability of joints' and 'reductions in disabilities' are chosen relatively frequent.
3. Massage, manual therapy and physical modalities are applied relatively often in the early phases of treatment.
4. Exercise therapy and instruction and advice are applied more often in the course of the treatment.

Methods

A survey was held in Dutch primary health care system during four years (1989-1992). In a survey questionaire data were gathered on physical therapy diagnosis, treatment goals and interventions. The diagnosis and treatment goals were defined in terms of impairments and disabilities.
In the present study data of two patient groups were used, namely patients with back pain (N = 1085) and patients with knee pain (N = 416). Only patients with a treatment lasting longer than six weeks were selected.

Results

Some evidence was found for the treatment of patients according to the hypothesized treatment model. However, several treatment characteristics did not correspond to the treatment model. No evidence was found for our expectations concerning a better fit of the model for patients with subacute complaints or for patients with a first episode of complaints.

Conclusion

In conclusion, some evidence was found for the hypothesized treatment model, although also discrepancies exist between our expectations and physical therapy treatment in practice.

If one assumes the model to be valid, it is necessary to search for reasons why it is not yet adopted by physical therapists. The other possibility is that the model is not or only partially valid and therefore hardly demonstrable in practice. If this is the case, further research is necessary to explore the value of this treatment model.

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MEASURING THE FUNCTIONAL STATUS OF PATIENTS WITH LOW BACK PAIN

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In research it is very important to choose relevant outcome parameters. Outcome parameters should fit in with central research questions. The impact of low back pain is largely related to patient functioning and is rarely fatal. For trials on effectiveness of treatments for back pain the outcome of greatest interest may be patient functioning.

Hard measures such as physical and laboratory measures are useful primarily to the degree that they correlate with symptoms and functional status. However, correlations between these measures are generally low. Functional status questionnaires seek to quantify symptoms, function and behaviour directly, rather than to infer them from hard measures. If they are successful, they reflect patient concerns better.

To determine the extent and nature of functional status measurement in randomized clinical trials (RCTs) about back pain we reviewed the RCTs used in three blinded reviews about the efficacy of physiotherapy exercises, mobilisation and traction. In 33 of the 53 RCTs, functional status was used as an effect measure. Only two well known questionnaires were used in four studies: the Roland disability questionnaire and the Oswestry pain disability questionnaire.

A number of functional status questionnaires are currently available. We present a review of four functional status questionnaires which have been used for patients with low back pain: the Roland disability questionnaire; the Waddell disability index; the Oswestry disability questionnaire; and the Million visual analog scale. The purpose of this review is to present comparative advantages or limitations of these questionnaires. Each questionnaire is discussed in terms of general description, purpose and use, scale structure, psychometric properties and clinical research applications. Functional status measures are currently not used in many settings in which they would be valuable.

It is important to encourage their wider use in clinical trials. Additional research is needed to improve existing measures.

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EXPLORING THE NATURE OF THE PHYSIOTHERAPY DIAGNOSIS: A QUALITATIVE STUDY

Chr.P. Bithell

Introduction

Physiotherapists describe the process of examination and treatment planning as 'diagnosis'. Although there has been interest in the related activity of clinical decision making, the nature of physiotherapy diagnosis is as yet an empirically unexamined concept. Payton[1] studies expert physiotherapists and found that their hypothetico-deductive reasoning processes are essentially the same as those of physicians when making diagnoses. While the nature of a medical diagnosis is clearly defined, a physiotherapy diagnosis is much less well understood. Rothstein and Echternach[2] suggested that physiotherapists generate working hypotheses about the causes of the patient's problems. The purpose of this study is to investigate the nature of the hypotheses generated by expert physiotherapists during initial examination of their patients, in order to explore what is meant by a physiotherapy diagnosis.

Methods

8 expert physiotherapists, all treating patients with musculoskeletal problems, were selected as a purposive sample. Data was collected through non-participant observation during the initial examination of an unknown patient, recording of field notes and, where permitted, audiotaping the session. Each examination was immediately followed by a focused interview, which aimed to explore in depth the hypotheses generated during the process of the examination. Each interview was audiotaped. Data was gathered by the same researcher throughout the study.

Results

All audiotapes were transcribed by the researcher. Transciptions were checked for accuracy by the interviewees. Content analysis procedures were used and mutually exclusive categories, based upon the description of causes of patient's problems, were derived from the responses. All data was assigned to one of the categories. Categories were assessed to identify common themes which will be presented.

Discussion

Common themes emerging from the data will form the basis for discussion of the extent to which this study may contribute to an understanding of the way physiotherapists frame and explain their patient's musculoskeletal problems and thus help to determine what is meant by physiotherapy diagnosis.

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THE CONTINUOUS SEARCH FOR EXCELLENCE

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The Oxford Dictionary defines Quality as 'the degree of excellence of a thing'. When we place physiotherapy against this definition we have to ask oursevels what we are trying to improve and how we define excellence.

This paper will discuss and examine these questions against the background of the management of change and the ever-increasing need for greater productivity in physiotherapy services.

The paper will also make reference to modern management literature and will argue that in order to bring about this 'excellence', physiotherapists will need to bring about a paradigm shift in their thinking and practice.

In 1945 when physiotherapy began to develop into the profession it represents today, the majority of our work was based in hospitals which were labour intensive, had poorly developed information systems and no capital investment except the building itself. Today health has become one of the most capital intensive systems in the world with an ever-increasing knowledge base and service output.

Organisations today are described as being based on service and knowledge, i.e. they are becoming centres of excellence which are needed to fulfil client needs.

Whereas in many industries performance capacity has dropped, the service industry, and particularly health care, has seen an unprecedented increase in performance capacity in order to fulfil these ever-increasing client needs. More and more highly skilled, intellectual and very expensive professionals, including physiotherapists, are required to operate the most technologically advanced equipment and perform sophisticated techniques. This has led to the out-of-control escalation in health costs.

This paper will attempt to introduce a new paradigm to physiotherapy and to analyse the process in physiotherapy where performance means quality and quality means developing centres of excellence. The power of physiotherapy does not lie in the gathering of capital equipment but in our unique knowledge and service capabilities; similarly the value of our service lies in the development of that knowledge base.

The effectiveness of improved quality will depend on how we manage our knowledge base and resources and develop skill depth to produce that service.

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'FYTELL'
AN INQUIRY INTO CONTINUITY OF PHYSICAL THERAPY

F. v.d. Broek

Introduction

Continuity in care is in the centre of attention. This interest is fuelles on the one hand by the government and on the other by experience from the physical therapy field. Insufficient continuity appears to be feasible due to a lack of structured cooperation, clear working agreemants, distribution of work and consultation between physical therapists in the primary care and the hospitals. This has consequences for the quality of care for the individual patient. Following the activities developed to improve the relationship between referring doctors and physical therapists, the polytechnic Leiden, department physical therapy started 'Fytell' project. This project's goal is twofold: in the first place it aims at improvement of the continuity in physical therapy during a patient's admision to and dismissal from hospital. The second goal is to develop initial physical therapy training programmes aimed at this continuity.

Methods

The survey comprised an assessment of current problems in the collaboration between physical therapists and referring doctors. An attempt was made to link up with national developments. For the referring doctors, an oral survey was chosen as instrument for inquiry. A hundred general practioners and a hundred specialists in the Leiden district were selected at random to participate in this inquiry. For the physical therapists a semi standardised interview was chosen. Physical therapists considered capable of contributing of the subject concerned were invited to take part.
Finally, discussions were organised with delegates from authoritative government departments.

Results

The results of the inquiry concur with the national opinion that continuity in physical therapy could do with some improvement. A striking element in this conclusion is the observation that referring doctors do feel responsible for continuity in physical therapy, but that they ascribe to physical therapists a crucial role in this continuity. The survey also shows that the patient's role should become more active in regarding continuity in care. A number of recommendations have been developed per field of interest. The project group has gathered these recommendations in a so called protocol, a written standardisation of the process guaranteeing continuity in physical therapy. The above-mentioned protocl can serve to stimulate a methodical approach, collaboration and registration. This protocol includes an elucidation of underlying ideas and reference frameworks. Besides this protocol, an educational programme in modules has been developed. The various physical therapy departments of the polytechnics can use whatever they might need.

Conclusions

Improvement of the continuity in physical therapy is in line with a need felt in the practical field. Moreover, the protocol developed is in line with national developments regarding improvement of the quality of health care. The protocol will have to be tested, evaluated and adapted. The next step wil be to set up an implementation phase.

That future physical therapists are already being informed in educational programmes and should stimulate the succes of this implementation.

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FEASIBILITY OF A PULMONARY REHABILITATION PROGRAMME IN COMMUNITY BASED PHYSIOTHERAPY PRACTICES

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Introduction

A number of studies indicate that pulmonary rehabilitation in inpatient or outpatient hospital settings improves the exercise tolerance and the Quality of Live of patients with obstructive pulmonary disease. This article evaluates the feasibility of a pulmonary rehabilitation programme in community based physiotherapy practices in terms of the recruitment of physiotherapists, general practitioners, pulmonary physicians and patients as well as in terms of the preliminary effects of the programme.

Methods

The success of recruitment ws evaluated by means of a self-constructed questionnaire. The exercise tolerance of the patients was assessed by using a submaximal bicycle ergometer test, an endurance bicycle ergometer test and a six minute walking test. Activities of daily living and the Quality of Life were evaluated by means of, respectively, the Chronic Respiratory Disease Questionnaire and the Medical Psychological Questionnaire for Lung patients. The study was designed as a pre-experiment; no control group was included. The treatment comprised breathing retraining, mucus-evacuation techniques, exercise training, education, relaxation techniques and recreation. For a period of three months the patients attendend thirty-nine supervised sessions of ninety minutes.

Results

Sixteen patients enrolled in the programme in three community based physiotherapy practices located in Amsterdam. The results showed that the recruitment of physiotherapists, general practitioners and patients was sufficient. In contrast, the recruitment of pulmonary physicians as well as the high drop out rate of patients did not come up to expectations. Eight patients with mild to moderate airway obstruction completed the study, and showed statistically significant improvements ($p < 0.05$) in exercise tolerance, activities of daily living and the Quality of Life. These results were closely in agreement with findings of other researchers.

Conclusions

Based on the recruitment of physiotherapists, general practitioners and patients and the preliminary effects of the programme the conclusion is drawn that the present study is feasible, provided that the above-mentioned problems with respect to the small number of recruited pulmonary physicians and high drop out rate of patients will be solved.

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PATIENT EDUCATION IN AN OUT-PATIENT PULMONARY REHABILITATION SETTING

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Introduction

Most pulmonary rehabilitation programmes comprise elements such as general exercise training, specific respiratory muscle training, breathing techniques, and patient education. Studies on the effectiveness of these programmes generally show improvements on the levels of disability and handicap. However, it remains unclear to which of the programme's components these improvements can be ascribed. Up to date, there does not appear to be a satisfactory way of measuring the outcome of patient education as part of a rehabilitation programme. It also remains unclear what patient education should look like, how it should be taught, who should teach it, and what the outcome should be. Notwithstanding the present state of the art, and accepting the generally held conviction that education is a prerequisite for improved self care, we have attempted to integrate a course of patient education into our rehabilitation programme. We will present this model and subsequently discuss possible evaluation methods.

Methods

We began by structuring the assessment of the need for education. Then, after reviewing the literature and taking into account the treatment setting, we, to the best of our knowledge, chose the most appropriate teaching methods. To support the educational outcome further we used existing audio-visual teaching aids, and designed materials we felt were required.
A syllabus was produced to ensure consistency of the contents of the programme and to encourage the use of common vocabulary amongst health workers. The course was implemented in our outpatient pulmonary rehabilitation programme, and subsequently introduced to physiotherapists running rehabilitation programmes in community based physiotherapy centres. Although the course is primarily taught by the physiotherapists who run the programmes, other health workers participate (specialized nurses, general practitioners, chest physicians).

Results and conclusions

There are strong indications that the rehabilitation programme results in an increase of patients' adherence to therapy. These indications will be discussed. So far, we have not been able to evaluate objectively the effects that education, by itself, may have had. During the evaluation of the effects of the entire pulmonary rehabilitation programme on the Quality of Life of patients, we have found significant improvements in dimensions such as Well-being, Mastery, Sense of Invalidity, Emotions, and Activities of Daily Living.

It seems quite possible that these improvements might, at least in part, be the result of education. It must be concluded that further research is required to answer these questions.

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REPORT ON A PILOT PROJECT OF PEER REVIEW FOR PHYSIOTHERAPISTS

H. van Ettekoven

Introduction

A pilot project of peer review for physiotherapists in private practices was started in january 1993. Initiatives for this project came from local organisations for physiotherapists in collaboration with a local health insurance company. The project was carried out under supervision of CBO for a period of one year.

The aim of the project was to develop, implement and evaluate peer review for physiotherapists working in primary health care and, secondary, to determine how peer review can be disseminated.

Peer review has an educational character and is an instrument to improve and monitor the quality of care in a structured and organized way. The method is based on the following steps:

1. Selection of a topic
2. Establishment of criteria for good care
3. Documentation of provided care
4. Comparison of provided care with established criteria
5. Implementation of necessary changes

Methods

The project was set up along two lines:

1. Peer review in private practices:

17 Private practices, of 4 or more physiotherapists, take part. Each practice has chosen a physiotherapist as a local coordinator who has been trained by the CBO to introduce and supervise the peer review activities in his own practice. In this manner an 'expert' is educated to support the quality assurance activities of the practice.

2. Peer review in district groups:

For the purpose of peer review, 4 district groups were formed, consisting of 8 or 9 physiotherapists from one or two man practices.

In each group 2 local coordinators has been trained during the project. The CBO coordinator visited the districts groups to support the local coordinators and to monitor their peer review activities.

Data were gathered during the project and in the evaluation phase by different evaluation forms, interviews and reports from participants.

Results and conclusions

Most practices and groups completed one issue in a 'qualitycircle' and some have started a second one. Many topics are organisational in character, but professional practice issues occur as well.

Some effects reported are: improved communication and cooperation with colleagues and the method allows a profound assessment of the chosen topic and creates insight in discrepanties in actual care. More results will be given at the conference.

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DIAGNOSTIC EFFICIENCY OF THERMOGRAPHY IN RELATION TO CLINICAL EXAMINATION AND FOUR-PHASE-BONE-SCAN IN REFLEX SYMPATHETIC DYSTROPHY (RSD)

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Introduction

Diagnosis of RSD is often made by clinical experience in the absence of validated diagnostic criteria. Aim of the study was to evaluate the diagnostic efficiency of thermography in relation to clinical examination and four-phase-bone-scan in patients with RSD.

Methods

14 patients with RSD were studied. Clinical parameters such as limb volume and active range of movement in relation to the healthy side were assessed. Pain was rated by means of a visual analogue scale. Temperature was measured by means of infrared thermography of the hand or foot. Mean temperature side differences were calculated. The thermograms were interpreted by two physicians trained in the technique. The following day patients underwent four-phase-bone-scanning (arterial phase: 0-60 sec p.i., soft tissue phase 5-10 min p.i., static images 3 hours, 24 hours p.i., 600 MBq 99mTc-MDP). The relation between health and affected side was calculated.

Results

A significant relationship between thermography clinical parameters and four-phase-bone-scan was registrated. In 8 patients with major clinical symptoms diffuse hyperthermia of more than 0°C on the affected side was detected. Scintigraphy revealed a difference > 1,2 in one phase compared to the unaffected side in all of these patients. In 4 patients with minor clinical signs hypothermia was presented. Scintigraphy was negative in these patients. Comparing thermography to scintigraphy a high sensitivity and specifity could be calculated (sensitivity 85%, specifity 75%).

Conclusions

In RSD patients with hyperthermia a relationship between clinical parameters, four-phase-bone-scan and thermography could be detected. However in cases with hypothermia scintigraphy and thermography did not show consistent results.

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RESPIRATORY DYSFUNCTION IN POST TRAUMATIC TETRAPLEGIA: AN ELECTROMYOGRAPHIC STUDY

P. Gounden

Introduction

Pulmonary complications continue to pose a serious threat to patients with complete lesions at any level of the cervical cord (tetraplegia).

The respiratory insufficiency is secondary to paralysis of the intercostal and abdominal muscles. The expiratory muscle force could be reduced to less than 40 percent of its normal values causing a serious impairment in the patients ability to cough. In addition to this, rib cage instability causes diaphragmatic dysfunction resulting in an approximately 50 percent drop in vital capacity. These factors are closely associated to the incidence of hypostatic pneumonia which has been shown to be one of the leading causes of death in tetraplegia.

Methods

The following clinical and experimental aspects are addressed:

(i) The examination of ventilatory muscle function as represented by static respiratory pressures.

(ii) The effect of posture on ventilatory muscle functions as demonstrated by changes in static respiratory pressures.

(iii) Electromyographic activity in the pectoralis major and latissimus dorsi muscles during expiratory effort in tetraplegics with lesions in the lower cervical cord.

Results

(i) Tetraplegics demonstrated slightly improved ventilatory muscle performance (static respiratory pressures and vital capacity) in the supine position as opposed to the supported sitting position.

(ii) The clavicular position of the pectoralis major muscle and the latissimus dorsi muscle were shown to play an important role during expiratory effort as evidenced by electromyographic activity.

Conclusions

These findings have important therapeutic implications. Specific training programmes to increase the strength and endurance of accessory muscles should be conducted with the subject in the correct position.

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DIAGNOSTIC VALIDITY OF CLINICAL TESTS IN TEMPOROMANDIBULAR DISORDERS (TMD): A META-ANALYSIS

A.R. Gross, T. Haines, J.M. McIntosh, C. Goldsmith, M. Thomson

Introduction

Since treatment effectiveness can be maximized by diagnostic accuracy, the physiotherapist may seek the best scientific evidence-based diagnostic tools. It was the purpose of this meta-analysis to determine the validity of clinical diagnostic tests using currently available reference standards for symptomatic TMD. Prerequisite to this prime objective (phase II) was the investigation of the accuracy of the reference standards (phase I) and adjustment for inherent biases.

Methods

Data Identification: Strategies used to identify relevant published and un-published research included: computerized bibliographic and conference proceedings data base searches; information requests from authors, agencies and experts; manual search of cited references.

Study Selection: A blinded, independent review of the literature using predetermined selection criteria was performed in duplicate. Inclusion criteria included: human subjects, continuous or binary data when all four cells of a 2x2 matrix could be completed from the tabled data and a diagnostic test was compared to a reference (gold) standard.

Data Extraction: Two blinded observers independently assessed the articles using explicit methodologic validity criteria. Data were extracted from some 70 diagnostic articles by two investigators, independently.

Analysis: Data were abstracted for each reference standard compared with a gold standard (autopsy, biopsy, surgery) of diagnosis to calculate the effect estimates of sensitivity and specificity for each trial. When homogeneity was found, common probabilities were calculated across these studies using a random effects model. In phase two of this study, clinical marker tests were compared to reference standards. The inherent biases in the reference standards were corrected utilizing a latent class method. Conditional odds ratios were estimated for each trial. Zelen's exact test was used to establish homogeneity across the studies. Assuming a fixed effects model, the common odds ratios using exact (conditional maximum likelihood) method were calculated for each clinical test compared to the reference standards. In both phases, sensitivity analysis was conducted when data were not homogeneous.

Results

The results of both phases will be presented.

Conclusions

Guidelines for diagnostic tests in the clinical setting will be presented along with discussion on the sources of bias.

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OUTCOMES OF A PHYSICAL THERAPY PROGRAM FOR CHILDREN AFTER ONSET OF ACUTE POLIOMYELITIS IN PAKISTAN

Z. Habib

Introduction

The purpose of ths study was to examine functional outcomes of a physical therapy program for Pakistani children after acute poliomyelitis. Due to vaccine failure, over 1500 cases of acute poliomyelitis were reported in Pakistan from 1989-1990. A polio clinic was established at the Civil Hospital in Karachi to serve both inpatients and outpatients. A total of 58 children were treated by the physical therapy staff in 1990. Only 38 children, who had completed the full course of physical therapy, were included in this study. The subjects were 15 females and 23 males with ages ranging from 5 to 36 months. Prior to the illness, 33 subjects were independent ambulators. Over 90% of the subjects had lower limb involvements. During initial evaluation, 19 subjects were unable to sit and 14 subjects were unable to stand independently. Twenty-two subjects had knee hyperextension and foot drop.

Methods

Physical therapy was initiated within one month of onset for all subjects. Length of physical therapy varied from 6 months to more than 20 months depending on the rate of functional recovery. Physical therapy ws provided three times/week, which included: moist heat, range of motion exercises, strengthening exercises, electrical stimulation, functional re-education, and fitting with orthoses. A strong emphasis was placed on training the primary care giver to conduct a home exercise program.

Results

At the end of the physical therapy program, all subjects showed improvement in functional skills. Twelve subjects could walk independently with an orthosis and/or ambulatory assistive device. Only six subjects still needed maximal assistance to stand.

Conclusions

Based on our experiences, physical therapy is effective to improve functional skills of Pakistani children after acute poliomyelitis. Many children could not attend regular physical therapy sessions due to financial or transportation problems. A comprehensive home exercise program should be given at the time of discharge from the hospital for those children.

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A COMPARISON OF PROPRIOCEPTIVE AWARENESS OF UPPER LIMB MOVEMENTS IN CHILDREN AND ADULTS

A.J. Harrison, M. Orton

Introduction

An understanding of the mechanisms which are involved in kinesthesis is fundamental to the treatment and rehabilitation of patients with impaired motor control. This study compares proprioceptive ability of young adults with that of children aged 6-10 years on an upper limb tracking task as developed by Goldscheider (1889) and later revised by McCloskey (1983). Such tracking tasks are frequently used in clinical work but there is little quantitative evidence to support their validity.

Methods

An experimental sample of twenty subjects was divided into two groups as follows:
Group 1 (children) n = 10, mean age = 7.5 years (sd: 1.38).
Group 2 (adult) n = 10, mean age = 22.25 years (sd: 4.03).
Subjects were videotaped using two synchronised sVHS video camcorders whilst attempting to mirror the guided movement of their right arm with their left. The videotapes were analysed using the Biomechanics Workstation (Harrison and Littler 1991a), to determine overall movement times, elbow joint angles and range of movement. Differences in the overall movement pattern were determined using an RMS difference techniques (Littler and Harrison 1991b). Heteroscedastic t-tests were used to evaluate differences between groups.

Results

	Children	Adult
Average RMS Difference	22.35 (sd: 6.82)	13.81 (sd: 6.97)**
Average Movement time (sec)	6.96 (sd: 0.95)	4.49 (sd: 0.49)**

(** = t value significant (P < 0.01)

Conclusions

The results indicated significant differences between children and adult groups in overall movement pattern and movement time but no difference in start and end point joint angles was detected. Children appear to have difficulty in following the PATTERN of movement and take longer to complete the task but can judge joint positions fairly well. It is concluded that joint position data at the start and end of movement are of limited value in judging the success of tracking behaviour. It is recommended that the experiment is repeated with stricter control on movement range and duration.

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PHYSICAL THERAPY DIAGNOSIS AND THE ICIDH?

Y. Heerkens, N. Bernards, W. Brandsma, D. van Ravensberg

The ICIDH, the International Classification of Impairments, Disabilities, and Handicaps, has been published in 1980 by the World Health Organization for trial purposes. The ICIDH is now a widely used classification in many areas (health care, social science, social security, surveys, research, statistics, documentation, policy, education and training) and used by a broad range of disciplines, including health professions.

The ICIDH can be used by health professions to classify several important data within the process of care. Some of these data are important in the process resulting in the physical therapy diagnosis, which is formulated on the basis of a wide set of data.

The physical therapist will obtain the necessary data for the diagnosis from three sources:

1. the physician: medical referral data, data regarding concomitant diseases / pathology and data regarding psycho-social circumstances of the patient
2. patient's history: complaints (impairment level: pain, stiffness; disability level: problems with sitting down, walking stairs; and handicap level: not able to work), remaining abilities (including compensatory mechanisms), daily routine and personal circumstances
3. physical examination: the findings during examination (impairments: decreased range of motion, hyporeflexy; disabilities: problems in carrying, in transfers; and handicaps).

After analysis of these data (using his/her professional knowledge) the physical therapist will be able to formulate a **physical therapy diagnosis.**[1]

> 'a professional opinion about the health status of a patient related to the underlying pathological process, acquired on the base of referral data, history, physical examination, supplemented with medical and psycho-social data'.

This definition indicates that in his/her judgment the physical therapist must take into account the underlying pathological process (disorder, aetiology, perpetuating factors).

Based on the proposed definition the statement is valid that the physical therapy diagnosis is much more than just one single impairment, disability, or handicap or a combination of several impairments, disabilities, and handicaps!

Only with a well formulated physical therapy diagnosis it is possible to conclude whether the health status of the patient can be positively influenced by physical therapy and to make a thorough treatment plan, a prerequisite for the quality of care given.

Reference

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DEVELOPMENT OF A SHOULDER PAIN DISABILITY QUESTIONNAIRE

G.J.M.G. van der Heijden, L.M. Bouter, A.J.H.M. Beurskens

Introduction

So far, an adequate domain specific instrument for determining (multi-dimensional) functional capacity of patients with shoulder complaints is non-existent. Therefore such an instrument was developed.

Methods

Sixty items from usual history taking, generic questionnaires (such as MPI, SIP, HSCL, MPQ, API) and disease specific questionnaires (such as RDQ, AIMS, DPQ, Owestry), were selected if they thought to be relevant. Then, items were (re)phrased so that they would describe limitation of functional capacity (disability) of patients with shoulder complaints. To select most relevant items two questionnaire were mailed to 273 PTs working in Limburg (NL) and 47 authors of articles about shoulder complaints (1990-1991).

First they were asked to select 15 of 60 items they thought of as most prevalent among patients with shoulder complaints. They also were asked to weigh selected items - on a 5 point Likert scale - according to their importance for description of functional capacity of such patients. Then items were ranked according to their weight-frequency-product, that was calculated from returned questionnaire.

The resulting second questionnaire consisted of 30 items. Again PTs and 'experts' were asked to select 15 items describing of functional capacity, they thought of as most important for evaluating treatment result of patients with shoulder complaints, and weigh the selected items - on a 5 point Likert scale - now according to the sensitivity to change (responsiveness). Again items were ranked according to their weight-frequency-product.

Results

The total response rate for the first questionnaire was 60%, and for the second 57%. Their was no difference in response rate between experts and PTs. Based on the ranking according to the weight-frequency-product a cutoff point at a product of 100 points was used (item 1-30) for the first questionnaire, and of 300 points (item 1-16) for the second questionnaire. The patient instruction for the selected 16 items refers to functional capacity in the last 24 hours. The response categories are restricted to *limited* and *not limited*, and *not applicable*.

Conclusions

A *Shoulder Disability Questionnaire* was developed that focuses on limitation of functional capacity (disability) due to shoulder complaints. The 16 items of the SDQ are thought to be relevant and responsive by relevant health care

professionals. Therefore, the SDQ can be used to evaluate treatment results during intervention research.
At the moment the SDQ is used in a randomised clinical trial about the efficacy of electrotherapy and ultrasoundtherapy as adjunctive treatments of exercise therapy for patients with shoulder complaints.
At the conference design and results of questionnaire development will be presented in greater detail.

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PHYSICAL THERAPY CONSULTATION IN PRIMARY HEALTH CARE

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Introduction

Consultation of a physical therapist (PT), prior to possible treatment, could increase the efficiency of health care. The main objective of the study is to determine the effects of a) the opportunity to consult the PT in primary health care and b) the number of referrals by general practitioners (GPs) to the medical specialists and PTs on the costs and the quality of the health care provided. Prior to the experimental field study a pilot study was conducted to test procedure, standard forms and data collection.

Methods

An exploratory 'one-group pretest-posttest design' was carried out in four local health insurance regions. The study was executed with a random sample of 59 GPs and 59 PTs. During a period of seven months the GPs were given the opportunity to consult the PT. Data was collected by means of questionnaires and interviews, registration forms, and information obtained by health insurance companies. Data was analyzed by means of multivariate or logistic multi-level analysis.

Some preliminary results

During the study period 352 patients were advised to consult a PT (4.9 per 1000 patients per GP).

The referral rate was significantly associated with the total number of patients in the GP practice ($\beta = -0.43$). In 26% of the cases the patient was referred because the GP needed diagnostic information; in 29% of the cases it concerned the indication for physical therapy, and in 45% of the cases for a combination of both reasons. In 94% of the consultations the GP found that the consultation had been performed 'sufficiently or excellently' and reported on by the PT. The judgement of the GP was significantly associated with the reason for consultation. The judgement of the GP was also significantly associated with the opinion of the GP about the diagnostic skills of PTs, experience of PT in 'advising GPs' and post-graduate education (specific expertise). In about 89% of the cases the GP followed the advice of the PT. More than 90% of the GPs and PTs were of the opinion that this new procedure was easy to incorporate in their daily practice and were satisfied with the procedure and forms that were used in the study.

Conclusions

The results indicate that GPs do use the possibility for a consultation by a PT. In general the GPs and PTs were satisfied with the new procedure. This study supports the supposition that use of expertise of more skilled PTs at an early stage may lead to a more efficient use of physical therapy.

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PATIENT COMPIANCE - COMMUNITY PHYSIOTHERAPY TREATMENT

T. Hutchinson, J. Roulstone

Introduction

Patient compliance with a physiotherapy programme is important for effective treatment wherever it is carried out. For patients treated by community physiotherapists motivation to carry out regular self treatment is paramount. This study examines the level of reported compliance by patients at home and compares it with the physiotherapist's assessment. Reasons for non-compliance are discussed.

Methods

Twenty seven recently discharged community physiotherapy patients were questioned about their compliance with exercises and advice. The interviewer was an occupational therapist who was independent of the physiotherapy service. The physiotherapists for these patients gave written assessments of their actual and expected compliance. A patient was deemed to have been compliant if he/she had carried out the prescribed exercise or advice. The number of repetitions and accuracy of performance was not in question.

Results

Twenty three (85%) patients reported compliance and four (15%) admitted non-compliance. These patients were also assessed by their therapists as not having adhered to treatment. The therapists picked out two further patients as non-compliant. This brought the figure for compliance which is higher than physiotherapy studies which would be quoted. There was no significant difference whether exercises were written down or given verbally. Compliance was not affected by encouragement from relatives or care staff. All twenty seven patients had been given advice but one third did not remember it. However a number of patients were able to demonstrate their exercises. Interaction with the physiotherapist was good in all but two cases.

Discussion

This section discusses the reasons for compliance and non-compliance. Common factors in the unco-operative patient group are highlighted and two cases given in detail.

Conclusions

Patient compliance is dependent on perceived reward in terms of health, lifestyle or well being. Community physiotherapists are in a good position to plan realistic goals and predict compliance. However, in certain circumstances non-compliance is an inevitable consequence.

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CORRELATION OF RESPIRATORY FUNCTIONS WITH ECG CV_{R-R} IN SUBACUTE MYELO-OPTICONEUROPATHY (SMON) PATIENTS AT THE MASS EXAMINATION

H. Iwatsuki, J. Iwatsuki

Introduction

Investigation was made concerning autonomic disorder of cardiovascular system of patients who were diagnosed as hypoventilation according to coefficient of variation of R-R (CV_{R-R}) in electrocardiograms of SMON patients at mass examinations in many regions of Aichi Prefecture in Japan.

Methods

One hundred sixteen patients, twenty three males and ninety three females, diagnosed as SMON ranging in age from fifty one to eighty eight years (mean 73.5). As investigation items, ventilation capability (% VC, % FVC, $FEV_{1.0\%}$, % MMF, V_{50} and V_{25}) and CV_{R-R} (during deep breathing load) were measured.

Results

1) Ventilation functions: among the whole patients, those who had % VC of equal or less than 80%, or those who had $FEV_{1.0\%}$ of equal or less than 70% (patients of hypoventilation) were 42 cases (36.2%), thus those who belonged to mixed type, occulusion type were often found compared with in the last time.
2) CV_{R-R} during deep breathing: SMON patients were divided into two groups of ventilation capability normal group and depression group, and the comparison was made. As for values at the resting of ventilation capability depression group, the decrease from the normal group was observed in cases of fifties and seventies in age, whereas the difference was not observed in other ages. Further, during deep breathing, significantly higher values than at the resting time were shown in age equal and below seventies of ventilation capability depression group.

Conclusions

Among ventilation capability depression group, disturbances of activities of parasympathic nerve system was estimated to exist, because CV_{R-R} showed lower values than those of normal group at the resting, while it showed a significant increase at the time of deep breathing load.

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CLINICAL EVALUATION OF A REHABILITATION PROGRAMME FOR PATIENTS WITH CHRONIC LOW BACK PAIN

Three experimental single-case studies

E. Johansson, P. Lindberg

Introduction

A physiotherapy rehabilitation programme, *stabilization training* for patients with moderate to severe chronic low back pain of degenerative aetiology, including lumbar disc herniation and spondylolisthesis, is routinely used at the University Hospital. The programme is designed to permit individual adjustment of exercises within a standardized structure, and takes 3-12 months to complete on an out-patient basis. The main purpose of the present study was to investigate the effects of *stabilization training*. Another purpose was to assess reliability and validity of measures used in clinical practice.

Methods

Three patients with chronic low-back pain were given *stabilization training*. Each subject was studied in a single-case format, using a multiple-baseline design. Dependent measures for each study were chosen from the physiotherapy diagnosis. These measures was collected on four occasions during a two-week pre-treatment period, and at each visit throughout the programme. Pain intensity was recorderd on a DIB-scale four times daily throughout the studies. Reliability and validity for these measures were judged as acceptable. The programme was then implemented so that dependent measures were addressed consecutively. The studies comprised 57, 46 and 22 weeks respectively. Data were analysed both visually and statistically.

Results and Conclusions

Clinically significant decreases of pain intensity occurred in two cases. Additionally, there were improvements in several of the other measures, such as muscular activation patterns, in all three studies. The use of an experimental single-case design, which guards against threats to internal validity, implies that improvements were related to the implementation of *stabilization training*.

However, the validity of some of the clinical measures could be questioned. Development of measures that reflect changes in both physiological and behavioural variables is a substantial challenge for future physiotherapy research.

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PREVENTION OF BACK-PAIN AMONG NURSING PERSONNEL; EXPANDING THE DOMAIN

J.J. Knibbe, R. Friele

Introduction

Back-pain is a highly prevalent among nursing personnel. Traditionally, the solution for this problem is to provide training in manual lifting techniques. Physiotherapists are often involved in this training. Although impressive efforts have been made in this field, the prevalence of back-pain remains high. On the other hand ergonomic interventions have shown to be effective outside health care. Testing their effectiveness in health care forms a challenging perspective. In designing these interventions the potential role of physiotherapists should be carefully evaluated, especially against the back ground of a profession developing a preventive orientation.

Methods

We studied the effectiveness of an ergonomic intervention towards the prevention of back pain among all nursing personnel in home care in the city of Rotterdam. All the nurses had received pre- and during- employment training in manual handling. The design of the study was that of a field-experiment. The experimental-group consisted of self-selected teams of nurses. Before the intervention, after half a year and after one year an assessment was made of the prevalence of back-pain and lifting tasks.
The intervention consisted of the introduction of 49 patients lifters of different types, facilitated through an extensive training and educational programm. Also organisational changes were initiated. Nurses were appointed to coordinate the assessment of lifting tasks, the installation of and training in the use of the equipment.

Results

The one-year prevalence of back-pain before the intervention was 64% for the control-group and 72% for the intervention-group. After 6 months, prevalence in the experimental group decreased to the level of 60%. The preliminary analyses of the one-year follow-up data demonstrate a stabilisation.

Conclusions

An ergonomic intervention towards the prevention of back-pain among nursing personnel in home care seems to have potential positive effects.

However, the data suggest a potential relapse after a follow-up period of one year. Ongoing analysis is directed at the thorough investigation of the nature of this relapse. The potential role of the physical therapist will be discussed balanced against the potential of the occupational therapist and the nursing profession itself.

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THE EFFICACY OF BACK SCHOOLS: A REVIEW OF RANDOMIZED CLINICAL TRIALS

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Introduction
Back schools were introduced in the seventies' as treatment modality for patients with back pain. Nowadays back schools (in different forms and intensity) are available and frequently used in many countries. In a systematic review of the literature we investigated whether the widespread use of back schools is supported by results of well conducted randomized clinical trials.

Methods
Literature search with computerized data-bases (e.g. Medline) for randomized clinical trials evaluating efficacy of back schools, covering the period 1966-1992. All publications were assessed for their methodological quality by two reviewers independently using a set of methodology criteria. The outcomes of the trials are presented in relation to their methodological quality.

Results
We identified 23 relevant publications in which 16 therapeutic trials were presented. The methodological quality of the trials showed a large variety (range 16 to 70: maximum is 100 points). Seven studies showed positive results of back schools mainly in an occupational setting. Seven other studies showed negative results. In two studies the authors refrained from drawing a conclusion. Studies reporting positive outcomes of back schools appeared to have a better methodological quality.

Conclusions
Due to the methodological shortcomings of the randomized clinical trials included in this review it is difficult to draw a final conclusion about the efficacy of back schools. However, there are indications that back schools are successful in occupational settings. In other settings (unselected populations) back schools are probably not very efficacious. Future research should focus on the identification of the patients who are most likely to benefit from this approach.

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A DESCRIPTIVE STUDY OF THE PHYSICAL THERAPEUTIC STRATEGY TO PATIENTS WITH COMPLAINTS IN THE SHOULDER REGION

A.J. Kortendijk, R.A.B. Oostendorp, J.H.W. Elvers

Introduction

Review of the literature in the area of efficacy of physiotherapeutic intervention has shown that

- operationalisations of physiotherapeutic interventions are inadequate;
- operationalisations are insufficiently adapted to the changing health status of a patient (as described in impairments and disabilities).

The purpose of this study has been to obtain insight in the health status of patients with complaints in the shoulder region, and insight in the adjustment of physiotherapeutic interventions to the changing health status of the patient.

Methods

During a 7 months period data were collected with the, for this purpose developed, Shoulder Registration Form (SRF). Data were recorded from 81 patients by 21 physiotherapists at four intervals. The physiotherapists were practicing physiotherapists in primary health care (FON).

Results

At the first measurement moment, t1, the impairments 'pain' and 'decreased range of motion', were present in 99% and 63% of the cases respectively. They were the most frequently recorded impairments. These impairments were considered 'treatable components' in 98% and 54% of the cases respectively.

The most frequently recorded disabilities (73%) were classed as 'disabilities in sensory-motor skills'. In 41% of the cases the physiotherapists indicated this disability as a 'treatable component'.

The physiotherapist formulated in their treatment objective total alleviation of the impairments for 63% and partly alleviation for 31% of the cases and of the disabilities respectively for 42% and 7% of the cases.

The physiotherapists modify their treatment objectives at the impairment level in 27% of the cases and at the disability level in 4% of the cases between t1 and t2. Between t2 and t3 these percentages are 12% and 5% respectively.

Modification of treatment policies concerns especially the number of treatment, the treatment objective, and the selected way or means for intervention.

Assessment at t4, showed that the formulated treatment objectives had been realized in 43% of the cases at the level of impairments, and in 46% of the cases at the level of disabilities.

Conclusions
All physiotherapists adjusted several times there treatment objectives, number of treatments and intervention techniques in the course of the treatment period, in response to the changing health status of the patient.
Reconsideration of the used research methodology and the consequences for the treatment protocol are essential in the context of quality assurance.

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PREDICTING DISABILITY AFTER STOKE: A CRITICAL LITERATURE REVIEW

G. Kwakkel, R.C. Wagenaar

Introduction

Accurate prediction of the degree of anticipated disability in stroke patients is important not only for the ensueing appropriate therapeutic intervention but also for adequate discharge-planning. Passive observational studies are complex and require a design that methodologically controls for possible threats to an invalid relationship between dependent and independent variables. The questions to be answered were: "Do prognostic studies meet the criteria of a passive observational study?" and if so "Which variables significantly relate to recovery of disability after stroke?".

Methods

Passive observational studies focused on the prediction of functional recovery after stroke were included in the study. The internal, statistical and external validity of these studies were evaluated.

Results

A total of 122 prognostic studies were included. Not a single study was internal, statistical and external valid. Critical issues appeared to be: lack of reliable and valid measuringtools; absence of uniform timed and sequenced evaluations during the observation period; insufficient duration of observation period; lack of prospective controlled cohort of stroke patients; lack of information pertaining to possible drop-outs, due to migration or death during the observation period; lack of information regarding premorbid status and patients characteristics like age, stroke type etc.; and verification of possible interactions between predictors in mathematical model applied.

Only eleven studies were found to meet the main criteria for the determination of internally and statistically valid research. A few variables were found to be useful in the prediction of functional recovery following stroke, e.g.: age; previous stroke; functional admission score; urinary incontinence; coma at onset; severity of paralysis; trunc balance; somatosensibility of the arm; and orientation in time and place.

Conclusions

This review demonstrates large methodological problems in passive observational studies in stroke. Although a few variables are candidate predictors. No definite conclusions with respect to the anticipated recovery of stroke in individual stroke patients.

In order to improve future prognostic studies adequate stratification in a homogeneous selection of patients is necessary. In addition, a cross-validation of the predictors by a second independent selection of stroke patients is recommended.

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QUALITY IMPROVEMENT OF PHYSICAL THERAPY BY REGISTRATION (KReeFT)

K. Lakerveld-Heyl, H.W.A. Wams

Introduction

In June 1992 the project 'Quality improvement of physical therapy by registration' (KReeFT) started. This project is aimed at the development of an up-to-date registration system which focusses on patient care in physical therapy practices in primary health care. This means that results of recent literature and discussions concerning the concept of quality, registration and classification should be incorporated in the development of the registration system. The ultimate objective of the project is to have a system available for developing criteria for quality improvement and assessment of physical therapy patient care at an individual level but also at a regional level.

Methods

Phase I of the project, consisted of a literature study in which all kinds of quality aspects were collected. For these aspects a number of objectives were developed to make quality measurable. These objectives are called 'quality indicators'. For every indicator a number of data needs to be registered. Ultimately a checklist was designed containing definitions of quality aspects, quality indicators belonging to the aspects and the data to be recorded for each indicator. This checklist also is the basis for a computerized patient data recording system which is being introduced in physical therapy practices in the Netherlands.

The suitability of the registration system within the framework of quality assurance of physical therapy will be examined. Physical therapists will be using the system for a trial period. The data collected with the registration system will be used to set up standards for every quality indicator. These standards are called: quality criteria (= characteristics on the basis of which judgement may take place).

Results

A checklist, containing the relevant up-to date requirements, which can be used as an instrument to analyze registration systems and with which systems can be designed. Except for physical therapy the checklist is a basis which other health professions as well could use for designing systems for their respective professions. A registration system for physical therapy in primary health care which enables physical therapists to assess, evaluate and improve the quality of their professional actions, and which is the basis for auditing and peer reviews.

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CHARACTERISTICS OF LOW-BACK PAIN PATIENTS WHO DO NOT COMPLETE PHYSIOTHERAPEUTIC TREATMENT

B. Lansinger, L.A. Nordholm, S. Tatjana

Introduction

Low-back pain is one of our most common disorders and huge efforts are spent on the rehabilitation of these patients. However, patients' problems in following treatment programmes has recently become an issue of great concern, and an important question for practicing physiotherapists is whether it is possible to predict who will drop out of treatment. The purpose of the present study was to investigate to what extent patients who dropped out of a physiotherapeutic treatment programma differed from those who completed the programme.

Methods

46 patients with low-back pain who had dropped out of a physiotherapeutic treatment programme at Olskroken, Göteborg, were matched on the variables age and sex with 46 patients who completed the treatment, and compared with respect to characteristics measured prior to treatment. Data collected on work disability and sick leave; frequency, duration and intensity of pain; physical function and activity; and personality characteristics were compared.

Results

Results of the statistical analyses revealed that the groups differed on 3 of the 16 dependent variables. The noncompleters had been on sick leave for a longer period of time prior to treatment, experienced more intense pain, and performed at a lower level on the test of physical function than those who completed the treatment programme.

Conclusions

Since noncompleters only differed from completers on 3 of the 16 variables, the evidence from this study would suggest that discontinuation can not easily be predicted. However, it is possible that other more relevant variables exist. Furthermore, this study has raised several interesting research questions such as: Could discontinuation be due to a general personality trait of disapproval/discontentment? Do people who are given group treatment discontinue because they want to be passively treated? Could knowledge about why people continue treatment help us understand why others discontinue?

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ASSESSING THE MOTOR-TEACHING COMPONENT OF PHYSICAL THERAPY PRACTICE: MICROANALYSIS WITH A NEW INSTRUMENT

H.M. Larin

Introduction

Teaching clients to learn or relearn postural adjustments and movement control is the underlying process of rehabilitation. Physical therapists must carefully choose motor-teaching strategies according to the client's age, goal, function, and cognitive level based on up-to-date research and theory. A particularly important body of this research has been carried out, in recent decades, by motor-learning theorists. The question arises how to assess, at the micro-level, therapists' use of such findings and theory. A proper investigation of the therapists' motor-teaching act (and underlying theories) during treatment sessions would require a rigorously developed, observation instrument and would reveal patterns of practice, theories applied, questionable intervention strategies, and factors associated to treatment effectiveness.

Methods

Single, individual treatment sessions of 21 pediatric physical therapists were videotaped. The clients were pre-school children who presented a diagnosis of spastic diplegia. The motor-teaching strategies employed were coded for duration and frequency with the author's Motor-Teaching Strategy Coding Instrument (MTSCI-1); concurrent discussion with the therapists was designed to evoke their explicit and implicit knowledge. Theory and practice were then compared against each other and with recommendations found in the motor-learning research literature.

Results

This micro-level analysis showed that therapists used most of the recommended motor-teaching strategies in their repertoire of therapeutic procedures, but they demonstrated greater awareness and knowledge of some strategies (e.g., motivational environment, active mode, active-assisted guidance, repetition) than others (e.g., selective attention, movement goal setting, quantitative and delayed feedback). The relationship between therapists' articulated, explicit knowledge and practice presented a mixed pattern. There were some incongruities. Therapists showed some awareness of diverse scientific theories, including motor learning, but particularly ecological, motivational, and developmental theories.

Conclusions

This investigation of motor-teaching has the potential for stimulating clinical therapists to reflect on their practice and adapt their instructional strategies to enhance clients' motor learning. The study adds support for strengthening

of movement-science curriculum and offers a comprehensive framework for current practice - and improvement - of motor-teaching.

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AN EARLY REHABILITATION PROGRAMME IN A PAPER AND BOARD MILL

R. Lehto

Introduction

The increasing number of sick leaves caused by musculoskeletal pain among workers in a Finnish paper and board mill led the introduction of a preventive programme, carried out by a physiotherapist and a psychologist.

Methods

Ten operators of paper and board machines were chosen to participate according to the following criteria: willing to volunteer, aged < 50 years, employed > 3 years in the same job, absent during the last 3 years because of musculoskeletal pain or had received physiotherapy, had no disease affecting work ability, not eligible for pensioning.

The programme included three 2- to 3-day periods of education during one year. At the beginning and end of the programme the participants filled out a questionnaire on their musculoskeletal system and one on their perceived work ability; they also performed five muscular fitness tests. They participated in planning ergonomic improvements in the workplace.

Results

All the participants had back and shoulder pain at the beginning of the programme. They experienced pain in their upper back, hips, and knees the least. At the end of the programme their shoulder and low-back pain had decreased the most. There were two dropouts.

Both at the beginning and end of the programme, most of the participants perceived their work ability as average, but one reported good, and one poor, work ability.

In the fitness tests all the participants showed improvement over the year. Static stability of the back improved the most. Some subjects were unable to perform the movements because of pain.

The following ergonomic improvements were made: air conditioning repairs on the paper machine, provision of more light and new equipment, repair of uneven floors, and changes in materials handling.

Conclusions

The success of such a programme is dependent on the motivation and stimulation of the participants to form and initiate their own ideas in the planning and realization of the project. Therefore collaboration between the physiotherapist and psychologist was essential.

The intervals between the education periods were perceived as too long. However, the participants needed time to change their life-style.

The participants believed that the programme succeeded to influence their attitudes and were satisfied with the project.

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RELIEF OF SUBJECTIVE SYMPTOMS IN THE NECK-SHOULDER REGION IN A RANDOMISED ERGONOMIC INTERVENTION

S.K. Lind

Introduction

Sedentary work, manual work requiring strenght and repetitive work cause load which often strains the neck-shoulder region leading to pain that restrics ability to work. There are at least two ways to try to solve the problem, either by reducing the load through ergonomic intervention or by improving the performance of the body. The aim of this study was to find out the effect of ergonomic advising and technical intervention at the work place on the symptoms experienced in the neck-shoulder region and the discomfort caused by them over two years.

Methods

The data was collected in 1986-89 from five factories situated in the Tampere region. The 7 500 employees of the companies formed the basic population of the study. With the help of a sick-leave analysis and other background information 642 of the employees were chosen from tasks in which more pain occurred in the neck-shoulder region than in other tasks. These persons were requested for compliance by a questionnaire which was returned by 493. Altogether 340 expressed willingness to take part in the study thus forming the study population. Of the 340 people 315 participated in the initial examinations and 231 in the final ones, so 84 persons (27%) dropped out during the follow-up period.

The study was carried out as a randomised epidemiological experiment. Those willing to take part in the study were randomly allocated into three groups, the group of ergonomic and technical intervention (N = 114), the group of physical exercise (N = 112) and the control group (N = 114). The study on the effects of physical exercise will be published separately.

Part of the initial examination was an extensive questionnaire. The subjects were asked symptoms in the neck-shoulder region and how they would evaluate the discomfort caused by these symptoms.

Intervention consisted of technical changes in the working environment like the height of the work tops, the placement and transport of material as well as the equipment used and of ergonomic advising as to how to use the body in work like recommended work positions, management of back and neck, lifting and correct use of strength. The aim of these measures was to reduce, above all, the load on the neck-shoulder region caused by static muscular work.

Results

The incidence of the symptoms was greater in the control group (19%) than in the intervention group (14%). The risk ratio was 0.7, which means that the

intervention seemed to prevent 30% of symptoms. Incidence of cure in the intervention group was 53%, which was greater than that among the controls (39%). The cure ratio adjusted by the illness ratio, that is the relative effect of the intervention, was 1.84. The incidence of cure was the same (53%) among those with both technical and ergonomic intervention and among those with ergonomic intervention only, which was higher than the incidence among referents (39%). Instead, the incidence of illness was the same for the referents (19%) as among those with both technical and ergonomic intervention (20%), which was higher than that among those with ergonomic intervention only (12%). Of all the individual symptoms the incidence of cure was highest and incidence of illness lowest for pain in the neck and referred pain to upper limbs. Evaluated by both illness and cure ratios the result was negative for weakness in the upper limbs bearing burden. Incidence of discomfort caused by symptoms in the intervention group by cure ratio the most positive changes were in the pain in the motion of the shoulder joints, pain in the neck and feeling of tension in the neck. Only the discomfort of the pain in the neck was positive also evaluated by illness ratio. Clearly negative results were not discovered.

Conclusions

In this study static load was common and the reduction of it was the central aim of the ergonomic and technical intervention and it looks as if exactly that has been the most influential factor in the decrease of the symptoms.

Ergonomic advising alone was related to bigger effect than the advising combined with technical changes. It was possible that the companies who invested into the working conditions expected the workers work faster and more intensly, perhaps even changed the basis for compensation. As a rule, any investment is expected to make profit. Therefore, the load on the workers was probably not substantially changed, the change in the intensity of work compensated for the technical changes. Ergonomic advising is usually not a very heavy economic investment and profits expected in return are not very important.

In the intervention group cure took place equally well - that is with 50% - regardless whether technical changes had actually been carried out, or whether the intervention had been merely ergonomic advising. In comparison with the control group the best protective effect was achieved with those who only received ergonomic advising. The relative effect was double.

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MEDICAL HISTORY MEASUREMENT IN THE HOME REHABILITATION SERVICE

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Introduction

Fisioterapia, S.A. is a private sector company which works in conjunction with the Catalan Health Service and renders services in first aid, including Home Rehabilitation in the city of Barcelona and others areas of the province of Barcelona representing a population of over three million inhabitants. To cover the needs of these sectors it has a team of over 150 professionals made up of rehabilitation doctors, physiotherapists and occupational therapists.

In October 1991 we set in motion measures to improve our welfare service, the principal objective being the measurement of medical history reports. As well as being a major indicator of welfare quality, this would help us to establish measurement standards to assist in setting uniform therapeutic criteria for a group of professionals whose ages and experience varied and who had socially different medical backgrounds.

Methods

1. The most important factors in medical histories were selected by consensus and subsequently each professional prioritised these in order of importance.
2. The results were tabulated in order to classify the 12 factors on a scale from greater to lesser importance.
3. A valuation standard was set for each factor.
4. A valuation sheet model was drawn up per history report, differentiating between and evaluating each factor according to its importance rating.
5. A total of 125 randomly chosen medical history reports were selected for measurement, representing 32,9% of the total registered admissions in March 1992. The percentage distribution was to be equal to the level of activity in each sector, criteria for inclusion and exclusion being laid down.

Results

This paper presents the results obtained during the initial valuation in March 1992 compared against those of March 1993.

The results of our work show that the action taken to correct weak points has resulted in an overall and analytical quality improvement in how medical history reports fulfil their aim compared with the first measurement.

Conclusions

There is no doubt whatsoever that the experiment has proved positive as we have been able to involve all our professionals in the measuring and improvement process, most importantly by incorporating the idea of self-supervision as a social value.

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INFLUENCE OF DIFFERENT SITTING POSITIONS ON POSTURE AND MOVEMENT IN CHILDREN WITH CEREBRAL PALSY

U. Myhr

Introduction

It is common that seating problems in non-ambulating children with cerebral palsy (CP) are addressed without detailed analysis of factors that influence the child. In order to deal with these factors a model for assessment and development of a functional sitting position has been designed for children with CP.

Methods

Children with spastic cerebral palsy, as well as a control group of non-disabled children, has been analyzed in different sitting positions in a number of studies. The basis of analysis was biomechanical and sitting positions were analyzed with varying seat and backrest inclinations in relation to effects of gravitational forces. The purpose was to establish if it was possible to identify factors that decrease spasticity and increase postural control (head, trunk and foot), enabling children to move their upperbodies and use their arms and hands optimally in play and in performing practical tasks - in a functional sitting position.Postural control and arm/hand function were analyzed with the Sitting Assessment Scale from videofilms. Photographs were also used to analyze different body positions in relation to movement axes. Surface EMG was employed to investigate in muscles involved in lower extremity extensor spasticity.

Results

The results revealed that even children with severe CP could sit balanced performing voluntary tasks. A prerequisite for this was that the pelvis be stabilized in a neutral or forward-leaning, symmetric position with aducted legs. This required fixating the pelvis with a hip belt, and that the chair seat provide a stable base. An abduction orthosis replaced the adductor-wedge. The foot plates were parallel with the floor and there was no restriction keeping the feet from moving backward when the child moves the upper-body forward to carry out a task with arms and hands. These measures significantly increased postural control as well as arm and hand function. Extensor spasticity patterns in the legs were eliminated. The feet remained on the foot plate without special limitations.

Results indicate that children with CP in a functional sitting position can improve posture and movement and therefore increase their ability to use their hands to do what they wish.

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DEVELOPING A STUDENT TEXTBOOK A FRAMEWORK FOR PROFESSIONAL PROBLEM-SOLVING

J.C. Nonhof-Boiten, T. Brouwer, F.C. Uilenreef-Tobi

Introduction

To the layman, physical therapists frequently appear to have different views on the essence and the essentials of their profession. This is mainly due to the great variety of therapeutical methods.
Whichever therapeutical method is adopted, every physical therapist will implicitly use a process of diagnostic reasoning to decide whether and how to treat a patient's complaint. To improve the quality of physical therapy, it is necessary to reconcile the different views and to reach consensus about the roots of our profession and to create a framework which we can act soundly and methodically. This is essential for our students as aspiring practitioners. Although many physical therapy textbooks are published in The Netherlands, there is not a specific student edition which gives a standard framework for a methodical approach to physical therapy.

Methods

We visited seveal polytechnics to discover whether there was a common view on the essentials and principles of physical therapy. There indeed proved to be a common opinion, although the terminology differed. All the lectures confirmed that a student textbook giving a framework for professional problem-solving would be invaluable. But is was also agreed that developing and writing a textbook would not be easy.
However, we have accepted the challange. In this presentation we would like to present our view on the contents of this textbook.

Results

Physical therapy does not merely involve giving treatment. It involves giving the right treatment, in the right way and at the right time. In our opinion this could be communicated by emphasizing hypothetico-deductive reasoning in physical therapy. Assesment is both before and during treatment. One should not only know 'how', but also 'why'. Methodical problem-solving was therefore the quideline for the first draft of this textbook, by setting out a line of reasoning for the various stages of physical therapy, from referral, assessment and treatment to final evaluation.

Conclusions

If we wish to improve the quality of physical therapy, it is essential to develop uniform requirements for diagnosing and treating patients, starting with the development of a framework for applying cognitive skills as a basis for professional problem-solving.

Although students from The Netherlands are known to be highly skilled, it is time to develop a textbook that states the principles and limitations of physical therapy, in order to improve the standards and skills of future practitioners.

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OUTCOME MEASUREMENTS FOR PATIENTS WITH MUSCULOSKELETAL DISORDERS

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Introduction

A computerised patient record in clinical work which also included a possibility to systematically register the outcome in terms of selfreported status from the patients were developed.

Methods

Registration of diagnosis, referral, age, profession, waiting time, length of treatment period, number and type of treatment was done. Patients estimation of discomfort, health, activity level, ward contact, expectations and goals.

Reports were done before, after and 3 and 6 months after the treatment period. Data from the patient records and questionnaires can be combined and the data can be transferred to a statistical package. Onethousandseven patients have been evaluated from 4 primary care units and one unit specialised on treatment of musculoskeletal disorders. The responserate at 6 months varied between 71-87% between the different units.

Results

The results showed a significant effect on perceived discomfort, health and activity directly after treatment and the effect was consistant at the 6 months control ($p < 0.001$). The goals were fully or partly achieved in 93-99% of the patients. Ratings including the patients experience of information, contact, understanding of the problems, treatment, waiting time and each area, was rated on a six point scale. The results showed that 95% rated between 25-36 points. (Max 36p).

The waiting time did not influence the level of perceived disocomfort directly after the treatment but the results after 3 and 6 months were different. The patients who had waited less than 2 weeks showed a better longterm result ($p < 0.001$) and the goals were fullfilled to 86% compared to 76% in the other group. Duration of sick leave over one month before the start of treatment influences effect on the long term follow up. The treatment at the experiment unit gave a better effect on patients with longer duration of problems ($p < 0.001$).

Conclusions
A computerised patient record system combined with questionnaire gives a tool for systematic outcome measurements that can be used in the normal clinical setting. The results show that physiotherapy for patients with musculoskeletal disorders have a long term effect. Early accessability to physiotherapy treatment is important for a good long term result.

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QUALITY ASSURANCE IN PHYSIOTHERAPY USING A NEW FUNCTIONAL ASSESSMENT SYSTEM FOR LOWER EXTREMITY DYSFUNCTION

U. Öberg

Introduction

There are a number of instruments for functional evaluation of different diseases. However, none is specifically done to evaluate variables important for a physiotherapist. The aim of the project was to develop an assessment system that can be used by physiotherapists for individual goal-setting in the training of patients, to evaluate functional status, to follow up the results of treatment and for quality control in physiotherapy. The aim was also to test this instrument for validity, reliability, discriminatory power, sensitivity and specificity.

Methods

A new functional assessment system for lower extremity dysfunction has been developed. It consists of 20 variables, divided in five diffent groups, that closely relate to the WHO classification of impairment, disability and handicap. Every variable is coded on a five grade scale from zero to four according to a special key. The results are plotted in a functional profile which can show the individual treatment goal, and the functional status before and after medical or physical treatment.

Results

The assessment system has been tested for validity with factor analysis, giving theoretical support for the grouping of the variables in the scale. It has also been compared with other international evaluation systems, the AIMS scale and the Rosser and Kind global life quality index. The variables correlated well with variables reflecting mobility, physical ability, activities of daily living and pain. The correlation with anxiety, depression and social contact was low. Life quality index correlated well with all variables in the new assessment system. A comparison between radiographical classification of osteoarthrosis ad modum Ahlbäck, and the functional status of the patients showed low correlation coefficients for almost all variables. Thus, radiographical classification cannot be used to evaluate the functional status of the patient. Inter-observer reliability, measured as correlation between two independent observers, was very good. Discriminatory power, measured with Ferguson's delta was good. The assessment has been used for two years on about 500 patients. It has shown to be a useful instrument for communication between the patient and the physiotherapist to decide individual treatment goals. It has also been a useful instrument for communication of functional status to the physician.

Conclusions
The new assessment system has been a practical instrument for individual goal-setting, for follow-up and as an instrument for quality control in physiotherapy. It does not need long initial training, and there is no need for expensive equipment.

The results from the project will also be published as a Ph.D. thesis.

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QUALITY MANAGEMENT IN PHYSICAL THERAPY IN BROADER PERSPECTIVE: A MODEL OF WORKING ON QUALITY WITH PROFESSIONALS

H. van Peet, J.W. Gort

Introduction

Research problem: In discussions about quality-improvement in professional services, a lot of attention always has been devoted to the professional quality, i.e. the quality as defined by the professional with respect to process and outcome, and to professional quality-improvement (standardization of skills and work processes). This is reflected in the list of themes of this conference.

In the last years there is a growing interest in the client and communication with the client (see also the list of themes), but most often this is defined by the professional (Patient cooperation and adherence, etc). So problems and tensions can arise with quality definition (what is quality, whose definition(s) are important) and with quality-management (which quality measures).

At the State University of Groningen, Faculty of Management and Organization, a quality managementmodel and a quality diagnosis instrument has been developed to meet these specific quality management problems in professional services. In this model three kinds of quality are distinguished:

Professional quality; Client quality; Management quality; Managing qualiti is balancing between these three qualities. The diagnosis instrument is designed to support the management of professional service organizations by giving a specific insight and analysis in how people inside and outside the organization think about quality (concepts and aspects that are important for concerned parties at different levels), and what is being done on quality by whom (policy, system, control measures).

In this paper we'll do two things:

1. Give a more detailed description of the professional quality diagnosis instrument and of the result of 3 care-studies;
2. Try to answer the question if and how this instrument can be used in physical therapy practices.

Methods

The quality diagnosis instrument has been developed as the result of literature research on professional quality improvement methods, on organizational diagnosis and on quality management.

The instrument has been applied and refined in three successive case-studies of professional organizations: an accounting firm, a lawyer's office and an regional institute of ambulant mental health care (all situated in the north of the Netherlands). The instrument has five steps and is using different information collection methods (interviews, surveys) and confrontation methods (feedback of findings, working conference).

Results

Results of the three case-studies will be shortly described. Then we'll explore the meaning of these results for physical therapy practices, especially with respect to the specific characteristics of 'physical therapy organizations':

- The professional character of physical therapy.
- The small size of the physical therapy practices.
- The execution of the management task.
- The environment/context of the physical therapy practice. (Financiers, government, competition)

Conclusions

Our conclusion is that the professional quality diagnosis instrument can be applied to practices of physical therapy as means for quality improvement, but it should be adapted to certain specific conditions of these small 'organizations'. The outline of quality diagnosis instrument, especially designed for a physical therapy practice, will be presented.

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THE ICIDH: AN IMPORTANT TOOL FOR IMPROVING THE QUALITY OF CARE

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Improvement of the quality of communication is known to contribute to the quality of care. Uniformity of language is an important aspect of the quality of communication. Classifications are important tools for developing a uniform professional language.

An important classification within health care is the International Classification of Impairments, Disabilities, and Handicaps, the ICIDH, published in 1980 by the World Health Organization for trial purposes. With the ICIDH it is possible to describe the health status of an individual or a population group at three levels, in terms of:

- impairments (tissue, organ of organ system level), e.g. muscle scar, decreased force of muscle contraction, decreased control of voluntary movement;
- disabilities (personal level): 1) in basic abilities such as changing from a sitting to a standing position and recognition of objects by touch, or in 2) complex abilities such as preparing meals, using public transport and visiting friends;
- handicaps (individual, socio-economic level), e.g. handicap in physical independence, handicap in mobility.

Although the conceptual framework of the ICIDH is attractive, there is criticism concerning, amongst others, the classification structure, definitions of concepts, the level of detail, and missing categories. As a result of the project 'Classifications and definitions of concepts for health professions', proposals have been developed for the improvement of the impairment and the disability section of the ICIDH.

The ICIDH (version of health professions) makes it possible to register, in uniform terms, the patient's complaints (history) and data from the physical examination, the objectives of treatment (the alleviation of, or compensation for, specific impairments, disabilities and handicaps), and treatment results (differences in specific impairments, disabilities, and handicaps before and after treatment). The level of detail used depends on the objective of the registration. The uniform use of terms contributes to the quality of care, in individual-, in multidisciplinary- and in interdisciplinary settings.

Besides being useful for registration/communication purposes, the ICIDH can be used to form homogeneous patient groups (on the basis of a combination of data concerning the disease/disorder and data regarding the health status in terms of impairments, disabilities, and handicaps).

Consequently, with the ICIDH an important tool for research is available, which also can contribute to the quality of care.

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RELIABILITY ASSESSMENT OF MEASUREMENTS APPLIED IN CLINICAL PRACTICE

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Introduction

For measurements in physical therapy, reliability is often assessed by means of an intra-class correlation coefficient (ICC). The use of this coefficient is appropriate for studies at group level, but does not correspond to the clinical application of measurements on individual patients. For making decisions about individuals, an index of measurement error, based on the Standard Error of Measurement (SEM) is required. In this paper a practical method will be presented to assess the SEM and corresponding indexes of measurement error. The method is illustrated for instrumented force measurements.

Methods

In a multi-center (n=5) trial, maximal isometric force measurements for knee extension were performed on patients with orthopedic knee disorders (n=66). For the measurements, a Computer-Assisted HaNd-held DYnamometer (CAHN-DY) was used. In three sessions of three measurement repetitions, measurements were carried out by two physical therapists. By means of generalizability analysis potential sources of measurement error were detected. For these sources and their interactions the attributed variance components were estimated. For various future applications of the force measurements the SEMs were calculated. In order to interpret individual scores and to detect real change in a patient, the 95% confidence interval and the smallest detectable difference were derived from the SEM.

Results

For the knee extension tests, 40% of the patients were excluded from data analysis, because they exceeded the upper limit of the therapists' resistance force. In test-retest and interrater applications, 70 to 80% of the measurement error was attributed to the factor session and therapist and their interaction with the patient. The factor repetition was not a source of measurement error. The SEM between sessions by the same therapist varies from 8 to 11 N·m. Between therapists, the SEM is 10 N·m. Substantial reduction in measurement error can be achieved by using mean scores over 2 sessions or 2 therapists. For measurements with the CAHN-DY, the smallest detectable difference varies from 22 to 32 N·m (single scores) or from 14 to 20 N·m (mean scores).

Conclusions

It is concluded that generalizability theory is a powerful tool for assessing the measurement error tailored to specific clinical applications. Like manual muscle testing and hand-held dynamometry, the upper limit of the measurement range of the CAHN-DY is determined by the therapist's resistance force. Differences between test-retest and interrater reliability of the

CAHN-DY were small, indicating that its application is relatively independent from the therapist.

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FUNCTIONAL DIAGNOSTIC OF CHILDREN BEING REHABILITATED DUE TO THORAX DEFORMITIES

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Introduction

Thorax deformities in children cause significant disabilities affecting their growth and physical fitness. Remaining medically untreated in the early years of individual devolopment, this type of illness results later in disturbances of child functional capacities. Its treatment consists both of surgical and conservative methods along with rehabilitation of ill children as a necessary cure proceeding.

Methods

The sample of 80 juvenile rehabilitees being under medical care at the National Mother and Child Institute (NMCI) in Warsaw, aged 7-18 years were subjects of this study. This group was divided into 3 subgroups:

1) children undergoing the in-patient rehabilitation program directly at the NMCI,
2) children undergoing the out-patient rehabilitation program according to indications of a physical therapist - at home or at the physiotherapeutic centres,
3) children who dropped exercises performing because of their parents neglecting attitude.

Investigation was conducted within a 3-years period. Measured and analysed were anthropometric parameters and cardiorespiratory functions indices both at rest and during exercise trials.

Results

The analysis was performed by means of a computerised program based on the relevant hardware and software packet (IBM PC, Windows 3.1 and applications, DBase, Statgraphics).

Whilst no significant changes were observed in analysed parameters when measured at rest, the exercise trials showed noticeable improvements in aerobic capacity among those children who underwent the surgical correction. In this group, after 3-years rehabilitation period, VO2max increased up to 70% as compared to the preoperative values. Among the mentioned above groups of children, the rehabilitees from NMCI had the best functional results. Aggraviation of cardiorespiratory functions was observed in those patients who discontinued the exercise therapy.

Conclusions

1) Surgical treatment of the observed children with thorax deformities, associated with the intensive rehabilitation of them improved visibly their physical fitness as compared to other ways of curing.

2) Rehabilitation of the ill children outside a hospital did not bring quite successful results and its discontinuation aggraviated their cardio-respiratory capacities.
3) Functional differences in the juvenile patients were revealed merely during the exercise trials; analysis of the selected parameters which were measured at rest did not showed the individual differantiation in the examined population of children with cardiorespiratory dysfunctions.

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A QUALITY ASSESSMENT ON CHEST PHYSIOTHERAPY FOLLOWING SPONDYLODESIS ACCORDING TO LUQUE

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Introduction

Due to progressive neuropatic scoliosis, sitting discomfort, pain, and finally pulmonary- and cardiac failure can occur.
Progression of scoliosis can be stopped using segmental wiring. Current literature report a high incidence of pulmonary complications following spinal surgery of neurological handicapped children.
A protocol, based upon current literature, to prevent these complications was designed.

Methods

From 1986 to 1992, 70 patients underwent spinal fusion. Out of those 70 patients, 24 were retrospectively studied (operated during 1986 - 1989); 46 were prospectively studied (operated during 1991 - 1992).
In the retrospective group the mean age at time of surgery was 15.9 years (range 9-24 years). Six out of 24 were mentally retarded .
A physical therapy protocol was designed to prevent occurrence of pulmonary complications, consisting of Active Cycle of Breathing Techniques (A.C.B.T.) and Incentive Spirometry (I.S.).
In the prospective study, mean age at time of intervention was 12.6 years (range 5 - 16). Twelve out of 46 were mentally handicapped.
The protocol was extended with pré and post operative postural drainage positions (P.D.), only for the patients who could not participate in A.C.B.T. and I.S.

Results

Retrospective analysis of the 24 patients revealed pulmonary complications in only 3 patients (12.5%), who were all mentally retarded.
Results of the prospective study showed that out of 46 patients in only 5 patients (11%) pulmonary complications occured.
Twelve patients,who were mentally retarded, participated in P.D. Only three of them revealed pulmonary complications.

Conclusions

In comparison with current literature, our study showed post operative pulmonary complications to occur in 9% of the patients; in literature it reached 30%.
Pulmonary complications occurred mostly in the group of patients with mental retardation who could not fully participate in the protocol.
After changing the protocol, also in the group of mentally retarded children, the incidence of pulmonary complications decreased.

To what extend the earlier time of surgical intervention contributed to this phenomenon, still remains unanswered.
Chest physical therapy is an essential part in pré and post operative pulmonary care in children who undergo spinal fusion. Protocol design and its evaluation are essential for quality care.

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ETHICAL CONSIDERATIONS IN SINGLE SYSTEM RESEARCH

J. Sim

Single system (n = 1) research is a quasi-experimental design, using a single subject and involving the sequential introduction and withdrawal (or substitution or manipulation) of a clinical intervention, in order to gauge its effect on one or more outcome variables through repeated measurement. It has recently achieved considerable popularity in physical and occupational therapy research. This paper explores the relationship between the methodological features of this research design and its ethical implications, drawing comparisons with the traditional group comparative study. Four main ethical criticisms of the design are presented, and their merits are assessed.

First, the claim that the single system design lacks external validity is considered; to the extent that this is true, it may deprive this design of some of the ethical justification possessed by more generalizable group designs, especially in respect of experimental risk. Conversely, the structure of the single system design does much to minimize such risk, and generally encourages a closer monitoring of the welfare of the individual participant.

Second, the use of a control group in group studies is often seen to present ethical drawbacks, especially with regard to randomization and the withholding of treatment, and the absence of a control group in single system studies is often commended on these grounds. However, although there is no randomization, the single system design commonly involves some form of treatment-withdrawal, and gives rise to comparable ethical criticism.

Third, although single system designs avoid some of the difficulties of group studies in relation to informed consent, they give rise to other, equally significant ethical problems in this respect.

Finally, single system studies are praised for their compatibility with everyday clinical practice, but this same characteristic can tend to blur the distinction between the therapist-as-clinician and the therapist-as-researcher in the practitioner's mind, with problematic ethical consequences.

In conclusion, it is argued that, as the single-system study grows in acceptability and popularity, physical therapists should scrutinize more closely its ethical ramifications.

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OUTCOME MEASUREMENTS IN RESEARCH FOR PATIENTS WITH NECK AND LOW BACK PAIN

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Introduction

A systematic registration of outcome in terms of selfreported perceived health and health care consumption on neck and low back pain patients are implemented in clinical work on 5 primary care units.

Methods

The patients answer a questionnaire with a package of research instruments before treatment, directly after treatment, 6 and 12 months after the first visit. Registered basic data is; age, gender, symptom category, activity level, former neck or low back pain problems, length of current episode, sick leave, previous treatment, expectations, locus of control, type and number of treatments.

The following measurements are used to follow perceived health:

a) general condition of health on a 6-point scale; b) pain intensity on a VAS - 1 to 100 mm; c) pain frequency on a 5 point scale; d) a quantified pain drawing; e) Oswestry low back pain disability questionnaire which gives score for 10 sections on the impact on daily life activity and social life - for example intensity of pain, difficulty with lifting, walking, sleeping, social life, travelling. The result is expressed on a scale ranging from 0% (no pain or difficulties) to 100% (highest score for pain or difficulty on all items); f) global rating of quality of life on a VAS -1 to 100 mm.

Sick leave and health care consumption are followed to measure health care costs.

The measurements are used in an on-going randomised clinical study where the effect on perceived health and costs from two different treatment strategies for managing neck and low back pain within primary health care are compared. The study is a pragmatic trial and an intention to treat model is used.

Study population - Patients visiting the general practitioner in primary health care aged 18-60 who have no contraindictions to manipulation and who have not been treated within the past month.

Interventions - Treatment at the discretion of the chiropractor or of the physiotherapist.

Results

Preliminary research results for about 150 patients will be presented.

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PATIENT COMPLIANCE WITH PHYSIOTHERAPEUTIC EXERCISES

E.M. Sluijs

Introduction

For a treatment to be of clinical use, at least two conditions must be met: 1) the treatment must include a component that has been demonstrated to be effective; and, 2) the treatment must be used in a prescribed manner by the patient. This second condition is called patient adherence or patient compliance. Patient compliance with exercises appears to be unsatisfactory thus efforts should be made to detect causes of non-compliance and to improve compliance.

Methods

We investigated which factors are related to patient non-compliance with physiotherapeutic exercises. Materials of the study are 1931 registration forms, 1837 audiorecorded sessions of physical therapy sessions and 1681 patient questionnaires. Participants were a random sample of 84 physical therapists in private practices (ambulatory care) in the Netherlands.

Results

The results show that the three main factors that are related to non-compliance are: 1) the barriers to exercising that patients perceive and encounter; 2) the lack of positive feedback; 3) the degree of helplessness. The first factor, the barriers patients perceive and encounter shows the strongest relation with non-compliance.

The results also show that non-compliance is more strongly related to the characteristics of the illness than to the kind of illness per se: for example patients comply better with exercises when they experience much hindrance of the complaints but they comply worse when their illness has a bed prognosis.

There appears to be no difference between men and women. Slightly less compliance is seen among high educated patients compared to low educated patients.

Conclusions

For physical therapy practice it seems important that physical therapists carefully explore which problems patients encounter in their efforts to comply and that solutions to these problems are sought in mutual cooperation with the patient. The results contain many other clues for improving compliance as well as clues for future clinical research.

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KINEMATIC ANALYSIS OF FUNCTION X-RAYS OF THE LUMBAR SPINE OF PATIENTS WITH LOW-BACK PAIN BEFORE AND AFTER MANUAL PHYSICAL THERAPY

W.H.A.M.M. Smeets, R. Mortier, M.W. Berfelo, P. van Roy

Introduction

Motion disorders in individual segments of motion are considered to be the main cause of low-back pain. The manuel physical therapist evalutes these motion disorders and the effects of treatment with specific manual examination techniques. However, the interpreation of these techniques are suject to large variances of observation.

Methods

To evaluate objectively the manual physical treatment effects, we use a kinematic analysis system K.A.S. (CTT Software & Berfelo Systems). The components of this system are an IBM-compatible personal computer, a back-lit digitizer with cursor (resolution 0,1 mm), a printer, and a software program KAS31 with mathematical and statistical procedures specifically written for kinematic studies of the lumbar spine. A data-base is incorporated which contains the kinematic data of 62 healthy individuals, of 47 patients with a symptomatic herniated lumbar disc (HLD) L4-L5, of 34 patients with HLD L5-S1, and of 21 patients with an olisthesis L5-S1. Marking points on function X-rays of the lumbar spine are digitized, thus enabling the quantification of all customary kinematic parameters. Information is also given about the kinematic behavior of the lumbar spine as a complete structure. A prognostic diagnosis for an individual patient is calculated by refering statistically his data to the data-base (M.W. Berfelo, Kinematics of the Lumbar Spine, Thesis, Rotterdam 1989).

Results

In this study, function X-rays of 11 patients with low-back pain are analyzed with K.A.S. before and after manual physical therapy, independent of the therapist.

It is shown that the disc angle, disc area, disc height, and lenght of the lumbar spine differ significantly before and after treatment ($p = 0.05$).

Conclusions

Objective evaluation systems as K.A.S., contribute to a better understanding of manual physical therapy effects.

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VALIDATING INDICATORS FOR QUALITY OF CARE IN PHYSICAL THERAPY WITHIN PRIMARY HEALTH CARE

T.N.M. Smit, H.W.A. Wams

Introduction

In June 1992 the project "Quality assurance of physical therapy by registration" (KReeFT) commenced. The objective of the project is to develop a computerized registration system for physical therapists working in primary health care. In this system a number of innovative elements are incorporated, such as the methodic approach of patients in physical therapy practice and the appropriate terminology for physical therapy. Also, the data to be recorded should enable the development of criteria for assessing the quality of daily practice. The study concerns itself with the prioritization of quality aspects (which means which are the most important aspects to develop quality criteria) for and with the validation of the quality indicators denominated for these aspects.

Methods

The adopted method of investigation is the policy delphi method. The policy delphi method is meant to determine management objectives, priorities, means, options and alternatives in present day praxis.

With this method, firstly, the quality aspects that have been listed in Phase I of the project are prioritized, and secondly, the quality indicators (measurable elements of care) that belong to the aspects are analyzed to see if they are valid.

The group of participants in the delphi method consists of experts in the field of quality assurance and persons which represent the organizations which have a primary interest in the results of the project e.g. the Royal Dutch Association for Physical Therapy (KNGF) and the Association of Physical Therapists in Private Praxis (VVF).

Expected results and conclusions

The expected results are a prioritized list of those aspects of care about which data should be collected and analyzed in order to develop quality criteria. The results of the second part of the study will consist of conclusions about the adequacy of the quality indicators in relation to the quality aspects. This means that about these aspects the data can be collected and transferred into criteria for the assessment of daily care in physical therapy practice.

On the basis of these results recommendations can be made to adapt the computerized registration KReeFT system.

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EFFECTS OF PHYSICAL THERAPY ON PSYCHOMOTOR ASPECTS OF POOR HANDWRITING

B.C.M. Smits-Engelsman, M.M. Schoemaker

The aim of this study was to evaluate the effects of treatment of children with motor problems on specific components of a proposed psychomotor model of motor behavior. It is estimated that 5 to 20 percent of all children show some form on non-optimal fine motor behaviour (including writing disorders). In recent years the diagnostic term Developmental Coordination Disorder (DCD) (DSMIII/R, 1992) has been introduced as the generally agreed description of the syndrome. In this paper a so-called process-oriented account of the diversity of motor behaviour problems in DCD is proposed. This framework has become the basis for conceptually founded measuring instruments used in the proposed psychomotor assessment. The design of the tasks was guided by basic scientific knowledge of motor control and the mechanisms which underly goal directed behavior and writing skills. Tasks were structured so that a specific task represents a specific aspect of the proposed model. In **diagnostic** procedures the **motor problems** can be linked to various aspects of motor control by selectively loading them by manipulating the tasks, according to the (hypothesized) model. We focused on the contrast between deficiences in the motor programming and muscular initiation stages. The **diagnostic applicability** of our results seemed hopeful and were now tested in an evaluation study on the effects of physical therapy (PT). A longitudinal comparison of DCD subjects treated with PT has been performed to asnwer the question if PT has any specific effects on the underlying psychomotor process as measured by the '**process loading task method**' used in the process oriented approach. The task demands were chosen in such a manner that they represented as much as possible one **specific component of the psychomotor model**. Apart from the computer monitored data we also have collected psychomotor and school achievement data. Subjects for the study were a selection of 20 childeren referred to PT for non-optimal fine motor behaviour (including writing disorders) and they were matched with normal age controls. The children were tested twice on the same ensemble of tasks, before and after three months of treatment. Each subject was tested individually. Tasks were presented visually and had to be performed on a computer monitored XY-tablet. We analyzed the effects of task demands and treatment on kinematic variables (movement time, average writing velocity, dysfluences), and on spatial features and errors.

Furthermore, the effects on tasks demands, relating to a specific component of the psychomotor model, were compared to the results on psychomotor test (Movement ABC/TOMI and Korper Koordinationtest fur Kinder or Dutch ABC).

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WHY DOES PHYSIOTHERAPY WORK? A NATIONAL SURVEY OF SWEDISH PHYSIOTHERAPISTS' BELIEFS

L. Stenmar, L.A. Nordholm

Introduction

Why does physiotherapy work? This question is central to the present study wich aims at finding out what practicing physiotherapists (PTs) believe to be the most important factors in successful treatment outcome.

Methods

In a qualitative pilot study, PTs were interviewed to explore the kind of causal attributions PTs make to explain successful treatment outcomes. The interviews were taperecorded, transcribed word for word and categorized. Three categories of attributions were revealed: (1) PTs' knowledge and treatment techniques (2) the client's own resources and motivation (3) the therapist/client interaction. A questionnaire including demographic variables and 22 Likert type items with attributional statements from the three categories mixed in with various attitudinal statements was mailed to a random sample of 187 Swedish PTs. The response rate was 76%.

Results

The results indicated that a majority of the respondents believed that the client's own resources and the client/therapist relationship rather than treatment techniques as such, are the most important factors in explaining why physiotherapy works. In addition, a majority endorsed a holistic view of treatment, althugh females significantly more so than males. Background characteristics among the respondents did not correlate with the attributions, except that PTs working in orthopeadics endorsed technique attributions to a greater extent than PTs working in psychiatry.

Conclusions

It appears that a holistic view of physiotherapy congruent with viewing physiotherapy as a caring profession prevails among a majority of the respondents, who think that the client's own resources and the client/therapist relationship are the most important factors in explaining why physiotherapy works.

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FUNCTIONAL AND PSYCHOSOCIAL OUTCOME AND PHYSIOTHERAPY AFTER STROKE: ONE YEAR FOLLOW-UP STUDY

L. Suhonen, O. Joki, S. Leisti, E. Mälkiä, J. Savolainen

Introduction

This report is a part of a project with the aim of evaluating the functional and psychosocial outcome of stroke patients and the physiotherapy services provided for them in two different acute hospitals in Finland.

Methods

The study population consisted of 42 ischaemic stroke patients. The measurements were done nine days and one year after onset. The measurements used were assessed ADL, self-reported health and general functional capacity, capacity in Personal and Instrumental Activities of Daily Living (PADL and IADL), and physical endurance along with variables of psychosocial wellbeing. The evaluation of the provision of physiotherapy was done by interviewing the physiotherapists concerned.

Results

The mean length of hospital stay was 27 days. 50% of the patients were discharged to their homes, and 24% to bed wards of Health Centres. At the end of follow-up, 83% were living at home, and 12% were deceased. There were increases in assessed functional capasity and self-reported PADL-capasity (except dressing) ($p < 0.05$). However, compared with the pre-stroke assessements there was a significant decrease ($p < 0.05$) in general health and functional capacity, in PADL-functioning ($p < 0.01$) (except mobility indoors) as well as in all IADL-functions ($p < 0.05$). In subjective assessment of physical endurance the decrease in capacity was significant in all measured variables. Also the self assessements of memory and mental activity had decreased ($p < 0.05$). 81% of the examined patients received physiotherapy in the acute hospitals. Physiotherapy was performed 1-2 times every week-day.

Conclusions

These findings confirm that a stroke very often leaves permanent disability to at least some degree. The further, more detailed analysis of the data remains to be done to determine out the content of the therapies provided in different hospitals. However, it can already be seen that carefully planned and regionally organized evaluation, therapy and support systems are needed.

Appropriate tools for evaluating the outcome and effects of physiotherapy should also be planned and adopted in institutions providing physiotherapy services.

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THE APPLICATION OF THE HYPOTHETICO-DEDUCTIVE APPROACH AND THE SEMANTIC NETWORKS APPROACH TO DIAGNOSTIC PROCEDURES IN PHYSICAL THERAPY

M. Tousignant

With the advent of legislation permitting direct client access to physiotherapy services, the weight of responsibility on physiotherapists in the interpretation of assessment calls for a review of a physiotherapist's professional education. The work of Elstein (1978) and of Barrows (1978) will serve as a starting point to discuss the physiotherapist's competence in diagnostic. The theoretical foundation is built on information processing, especially the mental processes involved in short and long-term memory. The opening postulate is the shortcoming of this information processing system: the human brain can not handle more than 7 ± 2 pieces of information at the same time. In this context, the task of problem-solving in an open system, where the starting point is known and the end point unknown, can only be accomplished by decreasing the amount of information that must be processed simultaneously. One helpful and popular technique for decreasing the amount of information comprises the formulation of hypotheses. The semantic networks approach (Lemieux & Bordage 1986) can prove to be of great assistance in generating hypotheses. It is based on a conversion of signs and symptoms into a binary format, known as the semantic axis. In a binary context, such signs and symptoms are interpreted as 'sensory-motor', 'proximal-distal' and 'unilateral-bilateral'. In order to improve competence in clinical problem-solving in the context of diagnostic, the Physiotherapy Programs should introduce the semantic axes approach in the curriculum courses. A reflexion of this way of thinking in the evaluation of the client and the implication for the profession forms the basis of the discussion.

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ASSESSMENT OF FUNCTIONAL DISABILITY ASSOCIATED WITH LOW-BACK PAIN: A DUTCH ADAPTATION OF THE QUEBEC BACK PAIN DISABILITY SCALE

M.W. van Tulder, B.W. Koes, L. Schoppink, L. M. Bouter

Introduction

Self-report measures of functional disability are frequently used to assess the outcome of treatment and rehabilitation in low-back pain in research as well as in clinical practice. The scales currently available have usually been developed without a well-defined conceptual framework, and a formal evaluation of the validity and precision of the scales has not been carried out. A new instrument for measuring functional disability associated with low-back pain has been developed in Canada, the Quebec Back Pain Disability Scale (QBPDS). The QBPDS consists of 20 items each with 6 response-categories scored 0 to 5. An overall score is computed with a range from 0 to 100. The primary objective of this study was to evaluate the Dutch adaptation of the QBPDS (QBPDS-Da) by assessing its internal consistency, reproducibility, validity and responsiveness.

Methods

The study population consists of a sample of 100 patients with chronic idiopathic low-back pain with or without radiation, aged 20 to 60 years. The patients were sampled from 23 general practices in the Netherlands. Patients were asked to complete this questionnaire at baseline, after 1-2 weeks and after 4 months. At baseline and after 4 months the patients also filled out the Roland Disability Questionnaire and rated the severity of their pain on a 10-point scale.

Reproducibility will be assessed by computing the intra-class coefficient (ICC) for the baseline-measurement and the re-test after 1-2 weeks. Cronbach's alpha will be used to assess the internal consistency of the disability scale. Because a "gold standard" is not available for assessing functional disability, the construct-validity will be computed. The results of the QBPDS-Da will be compared with the results of the Roland Disability Questionnaire and with the ratings of the severity of the complaints as reported by the patients. Responsiveness of the questionnaire will be analysed comparing the change of the baseline-scores after 4 months with the change scores on the Roland Disability Questionnare and the severity of complaints.

Results

At the time of writing recruitment of patients has been completed and 117 patients have been included in the study. During the presentation the final results of this project will be presented.

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PATIENTS WITH PSYCHO-SOCIAL COMPLAINTS TREATED BY THE PHYSICAL THERAPIST: A DESCRIPTION

R.W.A. van der Valk, J. Dekker

Introduction
Although patients with psycho-social complaints are frequently visiting the physical therapist much remains unclear with regard of the physical therapeutic treatment of these patients. In the context of compiling an inventory of physical therapy in Dutch primary health care a description of current practice is given.

Methods
A total of 17109 patients applying for treatment between 1989 and 1992 were included. The patients were classified into three groups. In these description a distinction is made into patients with somatic complaints, patients with psycho-social complaints and patients with somatic complaints causing psycho-social consequences. By classifying the patients into three groups use is made of the judgement of the physical therapist to what degree the complaints of the patients was psycho-social. The greatest part (66.3%, N = 11340) of the patients had somatic complaints. A smaller part (15.1%, N = 2575) had somatic complaints which caused psycho-social consequences and 18.7% (N = 3194) had psycho-social complaints.

Results
The patients with psycho-social complaints are frequently referred to the physical therapists with headache, hyperventilation and neck-shoulder pain. These patients frequently suffer from increased muscle tone. The treatment of these patients is frequently directed on the regulating of these muscle tone. In these treatment the physical therapist frequently uses massage therapy. Besides heat and cryo therapy are frequently used.
The patients with somatic complaints with psycho-social consequences are older than the other patients. Although their reasons of referral are almost the same as the reasons for referral of the somatic patients they have their disorders already for a longer period. These patients suffer frequently from disabilities; especially disabilities in self care and physical control are frequently found. In the treatment of these patients exercise therapy is frequently used. The treatment duration of these patients is greater than the treatment of the other patients. Besides a greater number of sessions is used. Almost half of these patients had earlier physical therapeutic treatment for the same complaint.

Conclusions
Of the patients visiting the physical therapist approximately one third has in an way psycho-social complaints. These patients can be divided into two groups: patients with psycho-social complaints and patients with somatic complaints resulting in psycho-social consequences. These two groups differ

with regard to the complaints, the treatment and the duration of the treatment.

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GOALS OF META-ANALYSIS

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Two approaches of meta-analyses can be used to summarize information in the literature. Firstly, statistical pooling of the results of all relevant studies (quantitative meta-analysis), and secondly, summarization of the results on the basis of methodological criteria (qualitative meta-analysis). In the last few years we performed several meta-analyses on the effectiveness of physical therapy, using a qualitative approach. The number of available studies on several subjects proves to be substantial, but the methodological quality is rather poor. Nevertheless, we continue our efforts on this field.

The primary goal of these meta-analyses is to summarize the evidence on the effectiveness of physical therapy. However, there are other goals which make it useful to proceed these meta-analyses. These secundary goals will be discussed in this lecture.

Our approach of meta-analyses emphasizes the methodologic quality of the studies. By ranking the studies on methodological score, it can be easily inferred whether the outcomes of the studies are related to the methodological quality. The observed effects in studies with the highest methodological score are most convincing.

Meta-analyses give an overview over a field of what is known, but also about what is unknown yet. Blind spots in specific fields can be detected. Moreover, the research questions can become more specific, either with respect to the patient selection or the intervention.

A qualitative meta-analysis makes it quite obvious which methodological shortcomings are most prevalent in the available studies. By our publications we hope to alert researchers to pay more attention to a proper design, conduct and report of their studies.

In our most recent criteria list we made a distinction between quality of study performance and informativeness of the publication. It is our ideal to convince referees of journals about the need for requirements on the informativeness of publications.

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VALUE OF SPECIFIC BREATHING EXERCISES FOR SCOLIOSIS PATIENTS - A SHORT TIME PROSPECTIVE STUDY

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Introduction

Restrictive ventilatory disorder and impairment of cardiopulmonary capacity are the result of severe thoracic scolioses. The lack of rib mobility as well as pulmonary compression in the deformed thorax are supposed to be the reason for this. Some authors think that breathing excursion is predominant on the thoracic convex side.

Methods

Breathing mechanics of 223 scoliosis patients with an average curvature angle of 38.6° (SD = 22.1) was assessed using the Bunnell's scoliometer and a special designed fixation apparatus. Measurements were taken in horizontal position in a standardized manner while shoulder and pelvic girdle were fixes. Measurements were taken from the apex vertebra of the thoracic and lumbar curve.

The soliometer value was measured in maximal expiration and in maximal inspiration and the difference between those values were computed. The influence of a tactile stimulus on breathing mechanics as well as the influence of an in-patient rehabilitation program on breathing mechanics were assessed.

Results

In unstimulated inspiration, the scoliometer value decreased at an average of 0.7° in the thoracic region and of 0.6° in the lumbar region. The decrease of the scoliometer values after tactile stimulation of the breathing mechanics was 1.75 scoliometer degrees in the thoracic region and 1.22 scoliometer degrees in the lumbar region.

After an in-patient rehabilitation program, a further decrease of the scoliometer values was possible (-2.38° thoracic and -1.89° lumbar). Additionally, there was after the in-patient treatment a decrease of the scoliometer baseline value which also was statistically high significant.

Conclusions

The following conclusion can be drawn:

1. There is no predominance of breathing excursion on the thoracic convex side.
2. Tactile stimuli may be of high value in the rehabilitation of breathing mechanics.

3. An in-patient exercise program according to Schroth leads to an improvement of breathing mechanics as well as to reduction of thoracic trunk deformity.

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COMPLIANCE ADHERENCE. A MODULE FOR PHYSICAL THERAPY STUDENT

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Introduction

It is important for patients to understand their illnesses, complaints and physical possibilities. Patients have to know their own body and how to deal with it. The physical therapist has the ideal possibility to inform patients about their abilities during the therapy-sessions.

Until recently education at polytechnics, at the departments of physical therapy in the Netherlands, little attention was payed to the coaching of patients: how to instruct, inform and advise patients about their complaints, impairments and disabilities had not been taught systematically. To fill this gap we had to develop an educational module.

Methods

In June 1991 four students wrote a final paper about prevention in physical therapy. They evaluated the way in which patients reacted towards advice and excercises concerning their treatment. In literature they found different approaches in patient education. The product of their study was presented in the form of a module. In September 1991 this module was tried out on fourth grade PT students during their internship. Evaluation and correction gave the following results.

Results

The module compliance-adherence has been incorporated in the curriculum of the polytechnics Leiden. It contains a fourty hour student activity program during the first period of internship or practical clinical training. At this point PT students use the module because of their clinical experience. During instruction lectures the students clinical experience is used as an example.

There are five steps the patient has to go through before he/she incorporates an advice of exercise program in his/her daily life. The five steps are:

1. becoming aware: to be accessible to advice/exercises from the physical therapist;
2. understanding : to understand the advice;
3. accepting : to be willing to follow the advice mentally,
4. be able : to be willing to follow the advice physically,
5. maintain : to carry it through.

These five steps form the guiding principle of the module. Every lecture consists one of the five steps. First the psychological aspects of a step are explained and the way how to approach the patient. A parallel is shown between students who have to do a study task and patient who have to take care of there body impairments. After this a group of three or four students prepare a clinical case. This case is presented in a role play. Evaluation is done by means of video registration which is discussed in the supervised

group. The students learn different ways to instruct and motivate a patient and develop skills accordingly.

Conclusions

After following this module a student is able to develop a treatment plan, not only by means of 'pure technical' interventions but also by methodocial explanation and instruction towards compliance. The expectations whether this module will enlarge compliance-adherence of patients in PT practice, and so improve the quality of physical therapy, will have to be subject to research.

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COMMUNICATION SKILLS IN PHYSIOTHERAPIST-PATIENT INTERACTIONS

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Introduction

The potential benefits of improved communication in medical consultations include greater patient satisfaction, better patient cooperation with treatment regimes, reduced anxiety and distress, quicker recovery and shorter lenghts of stay in hospital. Poor communication on the other hand may lead to incorrect diagnoses, wrong or rejected treatment or advice and patient dissatisfaction.

Physiotherapists in particular may spend up to one hour in a single treatment session with a patient. Treatment usually necessitates the patient continuing with exercises at home on a regular basis in order to attain optimal outcomes of treatment. The therapist must therefore communicate effectively with the patient to ensure compliance with their instructions.

The aim of the current study was to determine the components of effective communication behaviours between patient and physiotherapist.

Methods

Fifteen therapists were videotaped in their normal workplace. Therapists were grouped according to their speciality and the videotapes analysed using a variant of the Delphi technique and the critical incident technique.

Results

The results showed that effective communication behaviours could be categorised uniformly across groups into instrumental and affective behaviours, however the ratio of instrumental: affective behaviour varied with the type of patient being treated. The components of effective communication were determined to be a combination of behaviours such as verbal attentiveness, providing adequate explanation and showing concern for the patient in addition to a range of non verbal behaviours.

Conclusions

From our results we concluded that the therapeutic encounter involved both task-oriented behaviours and behaviours with an emotional content.

It seemed to us that our panel saw professional integrity and competence as involving adherence to strict social boundaries and acting largely according to traditional roles.

We have also concluded that our imperatives for future research are first to explore the generalisability of our findings and secondly to explore relationships between patterns of deployment of communication and patient compliance and satisfaction.

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SHOULDER COMPLAINTS IN DUTCH PRIMARY HEALTH CARE: DIAGNOSIS AND MANAGEMENT BY THE PHYSIOTHERAPIST

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Introduction

Shoulder complaints are frequently caused by an inflammatory or degenerative condition of tendons, bursae or capsule. Due to the complex anatomical and functional structure of the shoulder joint it is often difficult to identify the source of the complaints. To date, little information is available on the epidemiology and natural history of shoulder conditions.

Methods

18 general practitioners (GPs) register each visit concerning shoulder complaints during a period of 12 months. Incident cases, i.e. patients who have not consulted their GP for shoulder complaints in the preceding year, are invited to participate in a prospective follow-up study. The GPs and physiotherapists (PT; n = 14) when involved in the treatment, record data on diagnosis and therapy. The participants fill out five written questionnaires at fixed intervals during one year. Before the start of the study GPs and PTs were trained to use the same diagnostic protocol, based on the ideas of Cyriax.

Results

In the first 8 months of data collection, 546 visits of 350 patients have been registered. 245 Patients are enrolled in the follow-up study. 43% Of the participants have been referred to a PT, most of whom are diagnosed as having rotator cuff tendinitis (42%) or capsulitis (19%). The GP and PT agreed on the diagnosis in 49% of all referred patients. Agreement was better in cases of capsulitis (73%) or tendinitis (59%), whereas agreement in cases of subacromial bursitis was poor (25%).

A variety of treatment modalities have been used by the PTs. So far, the results show that deep friction massage is the treatment of first choice for tendinitis. Patients with capsulitis are usually treated with passive mobilization and active exercises. Therapeutic applications, such as ultrasound, electrotherapy, ice or hot packs are used in 50% of patients, regardless of the diagnosis.

Conclusions

The diagnosis of shoulder complaints may be difficult, but some specific diagnoses, particularly tendinitis and capsulitis, are more easily identified by both GP and PT. Massage, passive mobilization and exercises are the mainstay of physical therapy for shoulder conditions. In june 1994, after conclusion of the recruitment period, over 300 patients will be enrolled in the

follow-up study. More detailed information on diagnosis and management of shoulder complaints by the PT will be presented during the conference.

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PATIENT-ORIENTED THERAPY AND STATISTICAL EVALUATION: ARE THEY COMPATIBLE?

M. Yekutiel

Introduction

Rehabilitation aims to improve the patient's quality of life rather than his physiological status and must set different goals for patients who, even with the same medical diagnosis or impairment, have different life-styles, needs and values. However, statistical assessment of the efficacy of rehabilitation procedures uses the classical clinical trial in which outcome measures are identical for all patients and therefore of questionable validity. One may also question whether standardised one-time testing in a clinical setting is appropriate for determining to what degree real-life goals have been achieved.

Presented here are two patients with Parkinson's disease, with different self-defined problems and goals, who kept daily records of relevant performance at home before and after commencement of therapy. The experience with these and other patients opens up the theoretical possibility of modifying the design of the clinical trial to accomodate individual patient goals and out-come measures.

Methods

Parkinson patients participating in a clinical trial of physiotherapy wich aimed to improve their mobility were filmed and timed during a series of tasks in a laboratory. In addition, an attempt was made to supplement these standardised tests with self-monitoring at home of activities relevant to therapeutic goals. Patients kept daily records of problems - like falls - or achievements, like excursions from home.

Results

Two patients are presented: MC whose freqency of falls declined from a mean of 10.3 per day before therapy to 5.6 during therapy, and FT whose daily walk alone along the street increased from zero to a distance of 12 houses.

Conclusions

These on-going records of real-life performance provided both insight into patients' problems and quantitative measures of change during therapy. The legitimacy of drawing 'statistical' conclusions about the effect of therapy in each patient and in groups of patients is discussed.

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POSTERS

CHANGING THE REMUNERATION SYSTEM IN THE NETHERLANDS: CHANGING PHYSICAL THERAPY?

M.E. van Baar, H.Ph.H. Abrahamse, J. Dekker

Introduction

In the Netherlands, a fee for service remuneration exists for physical therapists working in private practices. On 1 april 1991, the remuneration for treatments of publicly (but not privately) insured patients changed. Instead of the earlier remuneration based on the number of seperate interventions in one session, physical therapists were now reimbursed with a fixed payment per session. Also, a maximum production volume was brought into force. The purpose of this study is to analyse wether the professional behavior of physical therapists was influenced by this remuneration change.

Methods

Data were gathered in a survey conducted from 1989 until 1992. Data were used of 34 physical therapists, having registred more than 100 patients before and more than 100 after 1 april 1991. Treatment characteristics of publicly insured patients were studied, while the treatment characteristics of privately insured patients were used as a control. The characteristics studied were the occurence of interventions and the number of visits per treatment.

Results

Preliminary results do not point in the direction of clear changes following the introduction of the new remuneration system for publicly insured patients. Subgroup analyses of physical therapist having more versus less freedom to act will be presented at the conference.

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PERI-URBAN DISABLES CHILDREN'S GROUP IN THE WESTERN CAPE, SOUTH AFRICA

J. Behr

South Africa has had to redress the in-equalities of health care to all disabled children and their families in the last few years. Knowledge on the management of disabled children has been shared with formation of community based groups.

White families have been advantaged in that being literate they have been aware of the gaps in the care accessible to disabled children elsewhere in the world. The parents' and constant compaigns enabled the needs of education for white disabled childeren to be addressed. Still there are in-adequate facilities for pre and post school age groups for this race.

The state policy of separate facilities and services has left an imbalance in the various race groups. Insufficient qualified health and education personnel has resulted in an influx of families to the larger cities for advice and care of the disabled child.

The pre-school black child has had no facilities until early learning centres started training groups for the normal child and only few disabled children have access to support groups and home programmes or even an early learning group.

Community profiles and surveys in rural towns nearby Cape Town concluded that services for the mentally impaired child, especially the multiply handicapped, were required.

The first request was from the parents to improve the child's mobility and then to address the educational needs of the child. Thus the author, a physiotherapist, with special interest in disabled children's groups formed support and stimulation groups in some of these areas.

This paper will discuss two groups in different towns and different races to try to evaluate in which way they function. Difference in approach by other members of the team involved with the group, cultural practices and apathy due the legacy of apartheid are studied.

Both groups were given the same programme and community workers were chosen and trained to co-ordinate these groups.

The recommendation that this type of groups should form a link for mainstreaming mentally impaired children is discussed.

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EFFICACY OF LASER THERAPY IN ANKLE SPRAINS; DESIGN OF A RANDOMIZED CLINICAL TRIAL

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Just after injury lateral ankle sprains patients present with pain, swelling and instability. Functional treatment with taping or brace is standard procedure, but is only feasible after most of the swelling has gone. Recently laser therapy is proposed as an adequate method for quick reduction of pain and swelling, thus initiating quicker functional recovery.

In order to study the efficacy of lasertherapy on soft-tissue injuries we designed a randomized clinical trial. This design intends to meet the shortcomings of previous trials and focuses on the question if sort-lasertherapy, additional to functional therapy, increases speed and magnitude of recovery, compared to functional treatment alone.

Patients (between 18 and 65 years) that report with a lateral ankle sprain to the University Hospital of Maastricht, are considered potential candidates to enter the trial. Patients are excluded if the injury took place longer than 24 hours ago, or if they received surgery. Also fractures and open skin injuries and relapses are excluded. Medical history will be recorded, and the patient fills out a questionnaire to complete baseline measurements. After that, stratified randomization (by age and sport participation) takes place.

We aim at three treatment groups of 75 persons each. The standardized treatment consists of four days elastic bandage and four weeks of bracing. Also standardized patient information and standardized home exercises are provided for all groups.

The additional laser therapy looks similar for all three groups, only the dose varies. Laser dose in group one will be 5 J/cm^2, laser dose in group two will be 0,5 J/cm^2 and group three wil receive a placebo (0 J/cm^2). All groups will be treated in the same way: 5 treatments in the first week, 3 treatment sessions in the second week and 2 treatment sessions per week in the third and fourth week. Each treatment session every patient receives the allocated therapy. Both patient and therapist are completely blinded. After therapy the patient completes a questionnaire.

Primary effect measure is amount of change in experienced pain measured on a visual analog scale (VAS).

Secondary effect measurements are: patient opinion about the extent of recovery, limitations in Activities of Daily Living (ADL), reduction in swelling, sports participation, absence from work, school and housekeeping due to complaints, patient satisfaction about recovery rate and about treatment given and the number of relapses during the next year.

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TOWARDS A RATIONAL THEORY OF PRACTICE: AN APPROACH THROUGH THE DISCIPLINE OF DIAGNOSIS

Chr.P. Bithell

Diagnosis as a label signifying a discrete clinical entity will first be distinguished from diagnosis as a process of clinical involvement. It will be suggested that while physiotherapists have begun to describe their process of clinical examination and treatment planning as 'diagnosis', there is as yet little published evidence that this is underpinned by efforts to classify and describe diagnostic categories. It will be further suggested that process without a systematic classification is relatively meaningless.

Differences between medical and physiotherapeutic diagnoses will be explored through a brief historical analysis of the development of medical diagnosis. Rose[1] has suggested that physiotherapists have now reached the same developmental stage as physicans of the 18th Century, and much may be gained by studying their approach. However this should not lead us to adopt a medical model of practice.

If Friedson's concept of structural dominance[2] applies to physiotherapy, then we would have to concede that the profession is subordinate to the dominant profession of medicine. Even where this is not the case, Miles-Tapping[3] has argued that while physiotherapists continue to accept doctors' definitions of evidence and reality, by accepting the medical model of disease, medical dominance will persist.

This paper will propose that by developing a literature of carefully documented diagnostic experience, and supported by lines of research, we could develop a theoretical framework which would guide practice in an overt way. It is the contention of this paper that the discipline of diagnosis may itself contribute to this body of knowledge.

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EXERCISE THERAPY IN PATIENTS WITH RHEUMATOID ARTHRITIS AND OSTEOARTHRITIS: A REVIEW

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Introduction
Exercise therapy in patients with rheumatoid arthritis (RA) or osteoarthritis (OA) is controversial, because both improvement and deterioration of the patients' condition can be expected to occur.

Methods
The literature was searched for studies on the outcome of exercise therapy in RA- and OA-patients. Twenty-four studies were identified, comprising nine controlled studies. In the present review, these studies are critically summarized.

Results
It was found that controlled studies have only reported improvements or non-significant results; deterioration of the patients' condition has not been reported. With regard to specific modalities of exercise therapy, it was found that aerobic exercise in RA-patients has been most thoroughly studied: improvements for specific categories of outcome (e.g. walking time and other sorts of observed disability) have been repeatedly reported, while for other categories of outcome (e.g. pain) non-significant results have been consistently reported. Several methodological deficiencies (concerning randomization, blinded evaluation and power) and assets (concerning compliance) in controlled studies are noted and evaluated.

Conclusions
It is concluded that, despite several qualifications, the available evidence is in favor of exercise therapy in RA- and OA-patients. Neglected areas of research, including comparisons between subgroups of patients, are identified and suggestions for future research are given.

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MAPPING CARPAL TUNNEL SYNDROME BY SERIAL CURRENT PERCEPTION THRESHOLD TESTING

J.E. Garzione, P. Schroeder

Introduction

Quantifying Physical Therapy treatment outcomes of Carpal Tunnel Syndrom (C.T.S.), in the past, has been very difficult. Therapists relied heavily upon patient reports of discomfort, aesthesiometry, and vibratory threshold measurements to determine patient progress.

Although not new, Current Perception Threshold (C.P.T.) measurements are gaining popularity among the medical community to screen for C.T.S.

C.P.T. employs a constant current sine wave at three frequencies (2000, 250, 5 Hz.) to quantitatively measure peripheral sensory nerve function.

The following investigation studied the usage of C.P.T. to quantify treatment outcomes of carpal tunnel syndrome.

Methods

Seven patients with a diagnosis of C.T.S., confirmed by nerve conduction testing, were referred to physical therapy for conservative care. Initial C.P.T. measurements were performed and the patient was treated using a variety of physical therapy techniques. Repeat C.P.T. studies were performed at 4 weeks.

If at the 4 week interval, the patient's C.P.T. grade increased, they were referred for surgical exploration. If the C.P.T. grade decreased the patient continued with their home program and were retested again in 1 to 2 months.

Results

Seven wrists were examined and treated using the above described protocol. Five showed a decrease of the C.P.T. grade with physical therapy intervention and were discharged with a C.P.T. grade of 1 or 0. The remainder showed either no improvement or an increase of the C.P.T. grade and underwent surgical decompression of the median nerve.

Conclusions

C.P.T. can be used to objectively determine the effectiveness of treatment for C.T.S. for a more informed clinical decision making process.

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FACTORS DETERMINING SCHOOL ACHIEVEMENTS OF CHILDREN WITH CLEFT PALATE

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In the last 20 years over 1000 children with cleft palate were rehabilitated in the Municipal Rehabilitation Centre in Konstanci near Warsaw. Their age ranged from 7 to 14 years. All attended primary schools. The mean duration of rehabilitation treatment was two month. Most of them had already had plastic operations for this condition. Logopedic exercises and physiotherapeutic treatment were conducted according to the principles of the Warsaw phoniatrics school with some modifications. The methods of individual rehabilitation treatment and the choice of exercises depended on the type and character of disturbances. For comparison of the degree of speech disturbances and for assessment of the results of this treatment a standard plan of investigations was evolved. The plan consisted of three parts: phoniatric (development of linguistic forms, articulation and voice disorders), audiological (determination of hearing sensitivity to sounds, of speech hearing), and psychological-pedagogic (testing of intellectual functions, school maturity, emotional sphere). Using a digital computer the results were analysed considering 36 traits in 1000 children, after palate reconstruction.

In the present work the factors were assessed which determined the possibility of ensuring these children adequate education. The study demonstrated the significance for school achievements of such factors as mental development, age, hearing acuity, length of palate and its mobility, type of malformation, age of plastic operation on the palate, social class from which the child was coming, associated orthondontic deformities, palatal fistulae.

The study indicated the necessity of early institution of treatment surgical as well as orthodontic and laryngological.

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A CLASSIFICATION OF PROCEDURES; AN AID IN THE EVALUATION OF CARE PROVIDED BY HEALTH PROFESSIONALS

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The project 'Classifications and definitions of concepts for health professions' started in 1990 and has as its main objective to contribute to the uniformity of language for the health professions participating in the project. These professions are physical therapy, occupational therapy, chiropody and two forms of exercise therapy (Cesar and Mensendieck).

One of the classifications needed by health professionals is a **Classification of Procedures**. It was found that adaptation of existing medical classifications of procedures to the demands of health professionals was not possible. For this reason it was decided to develop a new classification. A draft for this new classification has been published in March 1993 and in the summer of 1994 the interim classification will be available.

In the Classification of Procedures a procedure is defined as a 'professional directly patient/client related activity in the health professions'. Consequently only those actions of the therapist directly related to patientcare are included. The classification contains the procedures both during the diagnostic process (inspection / observation, palpation, testing, etcetera) as well as during treatment (including prevention) (massage, electrotherapy, exercise therapy, etcetera).

Although the classification must be recognizable, the subdivision and the terms used are somewhat different from those used in daily practice; e.g. in daily practice procedures are often described by their objective (relaxation, mobility, etcetera), while in the Classification of Procedures procedures are mainly described by their intrinsic characteristics (what is the therapist actually doing to reach a certain objective). This choice has been made to make the classification more stable.

While the health status and medical condition of the patient both before and after treatment can be described with the ICIDH (International Classification of Impairments, Disabilities, and Handicaps) and the ICD (International Classification of Diseases), the Classification of Procedures enables professionals to describe the treatment itself (the process between income and outcome). By separately describing income process outcome an important prerequisite for research into the effects of care is fulfilled.

Using the Classification of Procedures will facilitate the communication about the treatment of patients by health professionals with other care givers, patients and insurance agencies. It will also facilitate research and peer review.

Since there is a clear relation between the quality of communication and the quality of care, the use of classifications, and consequently the use of a uniform language, is a prerequisite for the quality of care.

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THE EFFECTIVENESS OF ELECTROTHERAPY, ULTRA-SOUND AS ADJUNCTIVE TREATMENTS OF EXERCISE THERAPY FOR SHOULDER COMPLAINTS

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Introduction

In this randomised clinical trial (RCT) we compare the effectiveness of electrotherapy and ultrasound as adjunctive treatments of exercise therapy with exercises alone for patients with shoulder complaints.

Methods

Eligible are those patients that suffer from pain and/or limited functional mobility of the shoulder and who are referred by their GP to one of the 17 participating (primary health care) physiotherapy centres. If no improvement occurs after 2 weeks with exercises alone they are enrolled. After written informed consent the baseline status of the outcome measures is determined and prognostic information is gathered. A blinded research assistant performs selection and effect measurements.

The goal is a study population of approximately 200 patients. Randomisation over 5 groups is stratified for (i) treatment centre and for (ii) impairment of (non)dominant side. Each patient receives 12 treatments (in 6 weeks) of exercise therapy with (1) ultrasound and electrotherapy; (2) ultrasound and placebo electrotherapy; (3) placebo ultrasound and electrotherapy; (4) placebo ultrasound and placebo electrotherapy; (5) no additional physical modality. The therapists and patients are blinded for ultrasound or placebo. The patients are also kept blinded for electrotherapy or placebo. Maintenance of blinding is evaluated at the first moment of effect measurement.

At 6 and 12 weeks and at 6, 9 and 12 months after randomisation effects are determined: perceived recovery, shoulder pain, range of motion and functional capacity. Additional outcome measures are: treatment satisfaction; medical consumption; relapse frequency; work absenteeism. The project is funded by the National Board of Health Insurances.

Preliminary results

So far 82 of the 90 randomised patients are seen 6 weeks after randomisation and 79 at 12 weeks. This means a 100% response rate during follow up. The overall recovery rate is 22% (18/82) after 6 weeks, and 43% (34/79) after 12 weeks.

Conclusions

Considerable difficulties have risen in finding eligible patients. However, adquate solutions have been found: implementation of a baseline period while using less restrictive exclusion criteria, and replacement participating

treatment centres. As a result the monthly number of enrolled patients is increasing.

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IMPROVING THE QUALITY OF CARE THROUGH IMPROVING THE COMMUNICATION WITH THE GENERAL PRACTITIONER

C.M.F. van den Heuvel, H.W.A. Wams

Introduction

In the Dutch health care system, cooperation of physiotherapists (PT's) with general practitioners (GP's) is considered very important. GP's refer patients who need physiotherapy treatment to PT's and they in turn report to the patient's GP. Results from several studies show that misunderstandings exist about the work of PT's and about the results that can be expected from physiotherapeutical treatment. In view of the quality of the care that physiotherapy patients should receive the cooperation between the two professions should be improved.

From 1986 to 1989 a study was carried out to analyze the basic elements of cooperation between GP's and PT's, in which much attention was paid to the images both professions had about each other. A model consisting of four phases was designed and tested to see if it would have a positive effect on the quality of the cooperation. A special implementation program which was introduced in 1990 and continued through 1991 failed, however, to attract enough interest. The question then was to investigate if it was necessary to alter the model, the program, or to abandon the activities alltogether.

Methods

The results of the studies with regard to this subject were reexamined and reconsidered. Also, the results of new studies were taken into account and the implementation program was analyzed on the basis of theories of dissemination of innovations.

Results

One of the main disadvantages of the original model is that both parties involved in order to want to put an effort in improving their cooperation, need to have an equal interest in their cooperation. This dependency appeared a serious bottle-neck in the success of the implementation program. Therefore, an alternative model has been developed which physiotherapists can follow by themselves. It is concerned with the communication from the PT with the GP with regard to the procedure and the contents of the communication. The altered model is being tested in the city of Leyden. The results will be reported on. The activities may in the end result in a protocol for recording and reporting physiotherapeutic information to GP's.

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A PROFESSIONALLY LED PARENT GROUP AND A PARENT LED SELF-HELP ORGANIZATION - A COMPLEMENTARY RELATIONSHIP

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Introduction

To assist parents of premature infants born at Mount Sinai Hospital, Toronto, Canada, a professionally-led parent group was initiated. Objectives of the multidisciplinary team (comprised of a physiotherapist, nurse and social worker) are to empower families through provision of knowledge, emotional support and networking with other parents. Each discipline contributes its own area of expertise in order to meet the multifaceted needs of parents. Research was conducted to evaluate, from a parental perspective, the relative importance of educational versus emotional support and to determine if feelings such as grief and helplessness were dissipated.

The Perinatal Parent Association, a parent-led, professionally supported group, evolved from the Parent Group. Endeavours include provision of parental support and education post-discharge, parent representation on hospital perinatal committees and a Parent Buddy Program offering one-to-one support by a trained parent buddy. Research was undertaken to determine the effectiveness and degree of satisfaction of "parents-helping-parents" in the coping process.

Methods

A questionnaire was mailed to 100 parents of infants weighing < 1250 g born in our NICU between August 1990 and May 1991. Self-addressed, stamped envelopes were included.

Four parent volunteers each acted as buddies between December 1990 and May 1991 to five families with infants in the NICU. A second questionnaire was developed to assess the degree to which having a parent buddy was deemed helpful.

The Parent Buddy Project was evaluated through telephone interviews conducted by professional staff and trained parent buddies.

All questionnaires were analyzed.

Results

The Parent Group questionnaire yielded a response rate of 41%. 100% identified that sharing of emotions was of equal importance to practical knowledge. Helplessness was the most overwhelming emotion (78%), dissipating through participation in the group. Feelings of guilt (75%), grief (55%) and emptiness (61%) diminished. Parents who attended were found to be more interactive with their babies pre/post discharge, more relaxed and confident.

Feedback from the Parent Buddy Pilot Project revealed: 50% of new parents met with their buddies; 80% found face-to-face contact enhanced rapport; 95% found the program helpful.
100% of the parent buddies reported that the experience was satisfying although 100% found that their experiences were not as expected due to the broad range of parental responses, cultural/socioeconomic diversity and the expectations for parents to more readily express emotions.

Conclusions

The multidisciplinary Parent Group with its dual focus of education and emotional support is successful in assisting parents in coping with the crisis of prematurity. The Perinatal Parent Association and Parent Buddy Project afford opportunities for self-help and professional help in resolving the ongoing issues of prematurity.
In partnership, professionals and parents work together to facilitate the process which ensues with the birth of a premature infant, in the hope of fostering optimal health and emotional well-being of the premature baby and his family from birth through to school age.

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THE VALUE OF PHYSIOTHECHNIC MODALITIES IN THE TREATMENT OF CHRONIC SKIN ULCERS

G. Koel

Chronic skin ulcers mostly have multifactorial etiologies. Off course a good general medical status is an important factor in the prevention of tissue damage. Vasculair problems (arterial, venous and/or lymphatic insufficiency) increase the chance of the development of skin ulcers. Neural problems may cause neurotrophic changes and insensitivity, which both play a negative role in the prevention of skin damage. A trauma or operation can be the reason of a skin lesion.

Many facts are avilable about pressure ulcers (or decubitus ulcers). Therefore in this lecture primarily the treatment of pressure ulcers will be discussed.

Dutch trials showed that approximately 8-10% of the patients in a general hospital and 15-20% of the patients in a nursing-home suffer from pressure ulcers. In the Netherlands that will cause respectievely 7000 and 6600 patients with pressure ulcers. On top of that there will be the same number of patients with ulcers living in there own homes. So all together there will be about 27.000 patients. A pressure ulcer can lead to an admission or a longer stay to a hospital. This will cause a relevant increase in the costs of health care. So effacious treatment benefits the patient and cuts down the costs of health care.

It is obious that a multifactorial problem needs multidisciplinair treatment. If possible the cause of the skin wound should be treated and off course prevention is very important.

Physiotechnic modalities (ultrasound, low level lasertherapy, ultraviolet therapy or lowfrequency electrotherapy) are possible additional treatments for patients with chronic skin ulcers. The last decade several new physiotechnic modalities are developed and much research has been done. It is difficult for the clinical practitioner to keep pace with these changes.

Critical analysis of the literature can give legitimation of the clinical use of physiotechnic modalities without over- or under-estimation of their influence. During the lecture the literature-review will be discussed and will lead to the following table:

	Theoretical basis	**Fundamental trials**	**Clinical trials**
Ultrasound	+ / -	+ / -	-
Laser	+	+ / -	+ / -
Ultraviolet	+ / -	+ / -	+ / -
LF electro-therapy	+ / -	+	+

\- : falcification
\+ : verification
+/-: questionable

These facts derived from the literature will help the clinical practitioner to use modalities adequately, rather than to be used by their technological possibilities.

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'STARS' CLINICAL AUDIT SYSTEM

L.C.W. Laidler

'STARS' is a formal multidisciplinary assessment programme developed by a rehabilitation team in Suffolk. It was validated in a study involving 1000 dependent elderly people - with staff, managers and volunteers - in 9 different care settings including Health Authority (Hospital), Social Services, Local Authority and Private Residential and Nursing Homes.

The original project to design a structured Functional Assessment programme to facilitate inter-disciplinary and inter-Agency networking has expanded into a computer supported database providing sophisticated and ColourGraphic information for:

i) Case management - to illustrate individual Patient Performance for both immediate and comparative use, for client-based provision, development and monitoring of Care Services,

ii) Resource Management - to sit on top of existing administrative systems to give a comprehensive range of standard and enquiry-generated reports,

iii) Research Management - to select individuals/groups and/or specific variables for study and evaluation,

iv) Community Networking - to tailor and coordinate formal and informal services to the individual client's needs and their changing circumstances.

The current model of 'STARS' is a 27 variable ability profile, each scored 1-4, but the system is flexible enough to allow the parameters of this model to be adapted to any requirements.

In addition, 'STARS' is an excellent tool for team-building!

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DEVELOPING STANDARDS IN QUALITY ASSURANCE IN PHYSIOTHERAPY

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Introduction

The Norwegian Physiotherapists Association is engaged in the development of standards in physiotherapy. There is an obvious need for standards in order to secure quality performance towards the patients, and to promote confidence in the physiotherapeutic skills. Standards will, furthermore, contribute to create uniformity of professional services.

Methods

It is our experience that it is most important how the process of developing standards is carried out. To have dedicated physiotherapists, highly skilled within various fields of their profession, participating in the development work will ensure engagement. Consensus conferences, workshops, discussion groups arranged centrally will ensure uniform training and provide continuing stimulation in working with quality assurance. The gained knowledge will promote professional development within the milieu itself. Which, in turn, will serve the users of such services. One of many tasks in a professional organization, is to initiate and stimulate development of quality assurance standards. In order to have these established standards being put into use, local as well as central cooperation is necessary.

Results

The project is at present in its primary phase. We sought to involve practicing physiotherapists with high competence and to concentrate on professional areas where developing standards were at primary interest.

Conclusions

To define and develop standards in physiotherapy is important both for the patients, and the physiotherapists themselves. The ultimate goal is to have these standards in physiotherapy integrated into standards of health care in general.

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EFFICIENCY AND SANITARY EDUCATION IN PHYSIO-THERAPY

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Introduction

Social-economic influences of the integration of sanitary education in the practice of the Physiotehrapist in primary care centres are not well known yet. This study tries to compare, in which manner this practice reverberate on the generation of new demands and, therefore, new costs.

Material and methods

An experimental, controlled and not aleatory study is made in two centres. The population of the study is the group of people who go to the physio-therapist during 6 months, due to lumbarache, cervicalache or shoulderache. Centre A is a hospital (referring 73000 people) and offers an individual therapy (electrotherapy); Centre B is a primary care centre (referring 16000 people), in which an individual and group sanitary education is carried out. There come 106 and 58 people, respectively, 8 people of each group abandon (75% male). A period of control is established during the following 6 months, in order to observe how many people demand for physiotherapy again, because of the same pathology.

Results

Both groups are homegeneous in age and sex: Group A, 45 years old and 69% female; Group B, 47 years old and 64% female.

The percentages of pains are alike: lumbarache, 37% of A and 48% of B; cervicalache, 36% and 26%; shoulderache, 27% and 26%, respectively. The average number of sessions of therapy in Centre A is 15, and 10 in Centre B.

During the period of control, in Group A, 22 people demand 29 new attentions again (30%). In Group B, only 5 (10%). Observing carefully these people, we see that women demand for mor physiotherapy in lumbar- and cervicalache, and men in shoulderache.

Conclusions

The addition of a correct sanitary education, individual or as a group, in the activity of the primary care physiotherapist, offers a better control of the costs caused by further demands of physiotherapy in a short term. It would be very useful to make further studies with longer periods of observation, in order to see if such differences still exist.

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PHYSIOTHERAPY ASSESSMENT IS INCOMPLETE WITHOUT PHYSIOTHERAPY DIAGNOSIS

L. Noronen

The definition of the physiotherapy diagnosis was introduced in Finland in 1976 (1). Since then the term has often been debated but the content has seldom been a topic of discussion.

Physiotherapeutic assessment is a decisionmaking process which is based on the knowledge and skills obtained from the education and experience. The theoretical background helps to define the problems of the patients.

A functional anamnesis is the basis for a more detailed examination. The structure of the physiotherapy diagnosis follows the three highest categories of the cognitive domain in Bloom's taxonomy (2). Movement dysfunction and functional disorders can be assessed using detailed examinations (analysis) or defined by combining individual examination findings (synthesis). The conclusions (physiotherapy diagnosis) are drawn from the assessment results (evaluation) to determine how and in which area (handicaps) the patients mobility within the environment is restricted (disabilities) and what the main reasons causing the problems are (impairments). The relationship between the WHO's classification (3) and the physiotherapy diagnosis is seen here.

One has to be realistic when assessing the patient's problems which should be measured at the same functional level (4) at which the results are wanted to be show.

Physiotherapy diagnosis differs from other diagnosis by its structure, examination methods and by the purpose of application. The conclusions are described in several sentences to define individually the patient's functional problems not eg. any pathological process or disease. The most important aspect is that the physiotherapy diagnosis is the basis for the goal-setting and for all decisions in physiotherapy process. It is also the basis for the quality. All decisions can be made in relation to patient's individual problems not only by instinct (5).

The main purpose of this study was to find out how wellknown the term physiotherapy diagnosis is among some clinicians and to define the possible differences in opinion about physiotherapy diagnosis after attending the lessons about this buject in one year postgraduate education for physiotherapists.

35 students were asked to describe the examination process in physiotherapy and to define physiotherapy diagnosis. Students were also asked to evaluate the importance of goal-setting and evaluation based on physiotherapy diagnosis and their own competence in understanding its structure and to perform and apply it.

The first inquiery was undertaken in the beginning of the education in september 1993. The second data collection takes place in december. The results will thus be available in June 1994.

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IMPLEMENTING INNOVATIONS IN PHYSICAL THERAPY

E. Pakkert, C.J. Schrijvers, H.W.A. Wams

Introduction

Introduction and acceptance of innovations in health care are known to follow from 4 to 8 stages, depending on the referred author. According to the state of the art, an adequate instrument to measure the progress in the implementation of the innovation did not exist. For the American educational setting an instrument, which is called the 'Concerns-Based Adoption Model' (CBAM), has been designed by Hall e.g. (1) in 1973. The CBAM can be used to diagnose people's concerns related to innovations. In 1981 the CBAM has been transformed for use in the Dutch-Belgian educational setting by Van den Berg and Vandenberghe (2). In the project 'Quality improvement of physical therapy by registration' (KReeFT) it was investigated if the CBAM was suitable in health care settings.

Methods

The CBAM consists of a questionnaire, an interview, a procedure for describing the configurations (forms) of innovations and a procedure for conducting concerns-based interventions. In 1992 and 1993 the CBAM has been transformed for use in measuring the process of implementation of an innovation in physical therapy. The questionnaire and the interview have been tested by using it for evaluating the concerns of a group of physical therapists in a project in which physical therapists had to learn to use a computerized registration system to register data from their patient examination and treatment. Based on the results of this evaluation research in collaboration with prof. Van den Berg, the CBAM has been adapted.

Results

The results of the first experiences with the CBAM in health care settings are that the questionnaire is transformed into a version that is now suitable for use in health care. The interview appeared already to be very suitable and is therefore not changed. The configurations of the innovation have been made suitable for measuring the progress in implementation of an innovation in health care.

At this moment the CBAM is used for directing the implementation of a registration system in two groups of physical therapists.

Conclusions

It seems that the CBAM is very suitable for evaluating and directing innovations in physical therapy and probably also in innovations in other areas of health care. In this way an instrument has become available with which progress of quality improvement can be measured.

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RESULTS OF MOTOR REHABILITATION OF PATIENTS WITH APHASIA

E. Promińska, J. Grossman

Introduction

Considering that the locomotor efficiency of patients with hemiparesis and aphasia determines in a high degree their self-dependence in life and the degree of their relying on the assistance of others, the effect was studied of rehabilitation treatment on the improvement of physical efficiency and walking ability.

Methods

A group of 144 patients undergoing treatment and rehabilitation in the Metropolitan Rehabilitation Centre in Konstancin was studied. At the beginning and at the end of rehabilitation course the self-service ability was assessed using a function test. The quantitative results of the test describing in a synthetic way self-service and walking ability of these patients were calculated and their correlations were analysed using computer techniques.

Results and conclusions

It was found that in patients with various types of aphasia and hemiparesis the results of rehabilitation such as greater muscle power, basic dynamic complexes responsible for maintenance of erect position, increased range of joint movements for walking - influenced significantly the improvement of locomotor skill in the studied group. A seven-week rehabilitation period was sufficient for achieving motor ability making possible discharging of patients from hospital and ensuring sufficient fitness for home environment.

For establishing the possible correlations the regression function was analysed. The most important factor for locomotion rehabilitation was the general fitness of the patients. In elderly cases this was the factor of greatest significance.

Low values of the regression coefficients for thet explanatory variable, that is age, were very optimistic indicating the usefulness of hospital rehabilitation even in the oldest age group.

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A PHYSICAL THERAPY PROTOCOL FOR STROKE PATIENTS IN PRIMARY HEALTH CARE

D. van Ravensberg, J. Halfens, R. Oostendorp

Introduction

Health care policy in the Netherlands is directed towards a more extensive utilization of primary health care facilities. This also concerns the rehabilitation of stroke patients. After a short period of hospital-based intensive care treatment, stroke patients are progressively more often further rehabilitated in primary health care facilities.

As a consequence, physical therapy is faced with a changing patient population of a complex nature, which needs specific kinds of intervention. For an adequate rehabilitation of stroke patients, an intensive cooperation with other disciplines is needed. This brings about a need for a protocol, supporting the assessment of the stroke patient's health status and the coordination and structuralization of interventions. Assessment results, therapy goals, ways and means of intervention and results have to be recorded in detail. Using a uniform language, in verbal as well as in written communication, is a prerequisite. This presentation describes the development of a protocol, supporting the above mentioned procedural aspects, the content of care provided by the physical therapist, and registration.

Methods

In the development of the protocol the experience obtained in the development of primary health care registration systems, the structuring of care, and the specific needs of stroke patients is used. Terms are based on the results of the project 'Classifications and definitions of concepts for health professions'.

The protocol is evaluated in primary health care settings and revised until the result was satisfactory.

Results

The protocol is composed of the following components:

One component supporting the procedural structuring of care: adjustment of care between the different disciplines, adequate exchange of data, and the structuring of the involvement in the rehabilitation process of the patient's partner/family.

The second component supports the content of care: the care as provided by the physical therapist, the communication with the different disciplines regarding the content of care, the content of the involvement of the patient's partner, his family, and/or relevant others.

Conclusions

The protocol supports the procedural aspects as well as the content of physical therapy in the care of stroke patients. By using this protocol, an improvement in the quality of care for stroke patients is expected.

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RESULTS OF AN OUT-PATIENT PROGRAM OF SPECIFIC EXERCISES IN ADULT SCOLIOTIC PATIENTS

M. Rigo, N. Puigdevall, A. Urrutia, G. Quera-Salvá

Introduction

Indications of treatment in adults with scoliosis are: back pain, deterioration of pulmonary function, neurologic disfunction, disorders related to psycho-social factors, and curve progression.

Back pain, vital capacity and rib mobility, postural capacity, and muscular imbalance can be improved by the use of the Schroth method.

Our treatment is based on the method developed by Katharina Schroth. The treatment program consist of correction of the scoliotic posture and correction of the scoliotic breathing pattern with the help of propioceptive and exteroceptive stimulation and with mirror control.

Several studies have been published supporting the possibility to influence the adolescent scoliotic curve progression by the exclusive use of het Schroth method. One Cobb degree is the figure accepted as being the mean curve progression every year in adult scoliotic patients. To prevent this slow deterioration could be expected as a therapeutical goal. Before to desing a prospective study we felt it was first necessary to review retrospectively our results.

Methods

We reviewed 15 (1 male, 14 female) out of 24 adult scoliotic patients treated during 1992 because a RX before and after the beguining of the treatment could be obtained (unselected). Diagnosis was idiopathic scoliosis in all except one polyomyelitic scoliosis. Being 29.7 the mean age and 11.7 the mean follow-up (treatment time included), we measured 35 curves (19 principal curves, 16 minor curves).

Results and conclusions

The mean initial Cobb angle of 43 was reduced to 41 (not significant). However in 7 out of 15 patients (9 principal curves) the Cobb angle were significantly reduced (more than 5 degrees). Two patients showed a relative progression before treatment.

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ABILITY-RELATED FORCE MEASUREMENTS ON THE KNEE WITH A COMPUTER-ASSISTED HAND-HELD DYNAMO-METER

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Introduction

The assessment of muscle performance is an important component of physical examination in many patients. The most well-known types of muscle force testing are isometric and isokinetic muscle testing. These types of muscle testing, however, have poor validity for inferences about functional performance. In the present study, two obstacles for validity have been identified: 1. a lack of correspondence between measurement conditions in force testing and the dynamic conditions under which muscular forces and moments are applied in functional abilities and 2. the absence of a theoretical framework to judge obtained force measurements in a functional context. With respect to both aspects, a method for ability-related muscle testing has been developed. In this paper the method will be illustrated for a dynamic force test for knee extension, related to the ability 'rising from a chair'.

Methods

Measurement conditions for the dynamic force test were standardized according to the knee angle and angular velocity trajectory, found for normal chair rise. By means of the net knee moment required to rise from a chair, an external reference level was provided for the interpretation of measurement results of the force test. The test was performed using a Computer-Assisted HaNd-held DYnamometer (CAHN-DY).

In a multi-center trial, in which 10 physical therapists and 66 patients participated and repeated measurements were performed, the clinical practicability of the test was evaluated. The patients' measurement results on the force test were compared to the ability-related reference and to their ability scores on rising from a chair. By means of logistic regression the predictability of ability scores from force scores was explored.

Results

Of the patients, 94% was able to perform the test according to the ability-related conditions. Of a subgroup of 49 patients, who performed all measurement repetitions correctly, the majority (28 patients) performed not a single measurement above the reference for rising from a chair. Most of these 28 patients had a low ability score for chair rise. In the present data, however, no predictive relation was found from measured knee moment on ability score.

Conclusions

By means of the CAHN-DY it is possible to perform dynamic force measurements under standard conditions. Further research is required to assess the reliability of this new type of force measurements. With respect to validity, the value of an ability-related reference for the interpretation of force measurements needs further research.

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THE NORWEGIAN PHYSIOTHERAPISTS ASSOCIATION'S PROGRAM OF SPECIALIZATION IN PHYSIOTHERAPY

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The Norwegian Physiotherapists Association established in 1989 a system for specialization in physiotherapy. By implementing a system of specialization in physiotherapy, the Association wanted to encourage physiotherapists to improve the quality of physiotherapist's practical ability as well as theoretical knowledge, within defined fields of the physiotherapy profession.

The Norwegian Physiotherapists Association have established six areas:

- general physiotherapy
- physiotherapy for children
- preventive physiotherapy and ergonomics
- rehabilitation
  a) geriatric rehabilitation
  b) neurological rehabilitation
- psychiatric and psychosomatic physiotherapy.

Physiotherapists in Norway may start their specializing program after basic physiotherapy education (three years), followed by the mandatory one year supervised clinical practice, plus two additional years of general physiotherapy practice. In the training program of specialization the following theoretical studies and clinical practice is mandatory (general guidelines):

- two years of practice in the field of specialization during the last 5 years
- 40 hours courses in scientific theory and research methods
- one year theoretical studies within the field of specialization, either by the continuing education program offered by the Association, or by post-graduate education given by colleges of physiotherapy
- one year of post graduate education relevant to the field of specialization
- 6 months postgraduate education in general physiotherapy or pedagogy offered by the physiotherapy colleges or at universities.

In each field the general guidelines for maintaining the specialization, are a minimum 100 hours of theoretical studies and courses within the specific field.

The title as specialist is obtained by individual application, and approval is issued by the Board of the Norwegian Association.

Approximately 100 physiotherapists have per January 1st 1995 acquired the right to use the title: Specialist in Physiotherapy, MNFF.

Specialists practice in hospitals, community health care services, private and public institutions and in occupational health/ergonomics.

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QUALITY SYSTEMS IN PHYSICAL THERAPY

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Introduction

There are two reasons why physical therapists in the Netherlands are actively involved in the development of quality systems. Firstly, in health care quality assurance by means of quality systems is becoming obliged by law fairly soon in the Netherlands. Secondly, the introduction of quality systems will contribute to the professionalisme of physical therapists. We investigated the current developments towards quality systems in physical therapy.

Methods

This study is part of a larger study covering all health care professions and health care institutions in the Netherlands. Interviews were held with representatives of each sector about their quality systems or quality system elements. For this study, additional information about the activities of the Royal College of Physiotherapy was collected.

Results

Quality system elements were defined as procedures for continuing quality control and improvement when shortcomings are discovered. It are in fact feedbackprocedures, characterized by a continuing proces of setting quality standards, measuring if the standards are met and improving quality when shortcomings are discovered (the quality loop). The main quality system elements in physical therapy are: peer review, certification of education programs, (re)certification of some physical therapy specialties.
Besides many efforts are directed at conditional activities which are preparatory to the introduction of quality systems:

a. Norms and criteria are formulated concerning professional duties and ethics, disciplinary codes and so on. The development of central guidelines for physical therapeutic treatment has recently been started.
b. Much research activity is directed at the development of unequivocal and uniform systems of classification (of diagnosis) and registration (of treatment).

Conclusions

The developments of quality systems in physical therapy are in progress. Comparing all health care professions shows that the medical professions are in front, but compared to all paramedical professions, physical therapy is in front of the developments.

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THE PROCESS OF THE DEVELOPMENT OF A MODEL FOR MULTIDISCIPLINARY TEAMWORK

E. Smith

Introduction

Rehabilitation services are rendered in the majority of the Hospitals of the Transvaal Provincial Administration (TPA). Due to the lack of formalised structures, the various rehabilitation professionals tend to function in an independent and uncoordinated manner. A multidisciplinary initiative was started at the TPA Head Office to facilitate the establishment of teams at hospital level.

Methods

The process started with a series of planning workshops, run by a business consultant. The participants included all the roleplayers of rehabilitation at head office level and the goal was to develop a model for multidisciplinary teamwork and to formulate an implementation strategy. This process will be described.

Conclusions

Without the sanction of management and the establishment of the necessary structures and guidelines, a multidisciplinary approach to rehabilitation does not automatically occur.

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QUALITY-ASSURANCE ON THERAPIST-PATIENT COMMUNICATION - PRESENTATION OF A TREATMENT PROGRAM AND QUALITY ASSURANCE

A. Torrestad, M. Håkanson

Introduction

A grouptreatment program for patients with chronic benign pain and anxiety has been developed and assessed during the years 1976-89. Ten sessions of grouptreatment consists of education on bodyfunctions, stressreactions and stressrelated symptoms, non-verbal communication and relaxation technique.
A multicenter study on the grouptreatment was made in 1989-91 on five different centers in order to receive quality assurance.
The physiotherapists participating have been educated on the treatment program in the same way as the patients, though completed with theories of grouptreatment, communication and non-verbal exercises.

Methods

Quality assurance was measured by comparing treatment effects of the five centres, regarding intensity of pain and degree of well-beeing. Treatment effects were measured by standardized questionnaires which patients filled in on three occassions, at the beginning and end of treatment and at follow-up four to six months after treatment.

Results

The change on intensity of pain and degree of well-beeing are equivalent at the five centres. Most of the changes are strongly statistically significant. Follow up shows that the general well-beeing had increased by 16 percent and that the average patient had 'crossed the border' into a state of 'positive well-beeing'. A change of lifestyle as a result of the group treatment is also reported by 50 percent.

Conclusions

This study shows that the grouptreatment leads to similar effects on patients at the five centres. The quality is assured.
For the physiotherapist, this way of patient education, combining intellectual understanding, practical experience of bodyreactions and pattern of behaviour is a stimulating and satisfactory professional approach. By using the total communication, verbal and non-verbal as a tool to make the patient understand and to control his lifesituation, he may achieve a higher quality of life and a long-term-effect of treatment.

The role of the physiotherapist is more the educators than the treaters. An enhanced understanding of the communication in the non-verbal exercises as well as in the interactions between patient and physiotherapist creates a growing body of knowledge. We realise the needs for further pedagogic and communicative research among physiotherapists.

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EVALUATION OF A STANDARDIZED PROTOCOL FOR LOW BACK PAIN PATIENTS

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Introduction
Lower back pain is one of the most common clinical problems in physical medicine, yet difficult to evaluate in an objective manner. Many different tests for patient evaluation are in use or have been described - but the validity is often uncertain. Therefore the aim of this study was to determine the reproducibility of a battery of physical examinations commonly used in physical medicine.

Methods
A set of 43 parameters including clinical observation (e.g. posture) as well as functional tests (e.g. Schober flexion test) were examined for inter-observer reliability and intra-observer reproducibility. 16 volunteers were evaluated by three observers three times each under pre-defined conditions according to our protocol.

Results
In general the intra-observer reproducibility was higher than the inter-observer reliability. Quantitative parameters showed good intra- as well as inter-individual reproducibility. The tests based on clinical observation had a greater variability.

Conclusions
For quality assurance reasons in the therapy of low back patients it is necessary to implement a well evaluated protocol. Most tests included in this study were of acceptable reproducibility to be of clinical use for this purpose.

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PHYSICAL THERAPY FOR PATIENTS WITH BACK COMPLAINTS: A DESCRIPTION

R.W.A. van der Valk, J. Dekker

Introduction

Physical therapy plays an important role in treating patients suffering from back pain. There is, however, still much that remains unclear about the physical therapeutic diagnosis, the nature of the treatment given to these patients and the interventions that take place in practice. In the context of compiling an inventory of physical therapy in Dutch primary health care a description of current practice is given.

Methods

Data is used form 3578 patients visiting their physical therapist with back symptoms/complaints. The patients have been divided into categories on the basis of the duration of the complaint and the presence or absence of radiating pain. 19.9 % of patients suffering from back pain had suffered from the pain for a period shorter than 1 week prior to the start of the therapy (short-term back pain), 24.8 % had had the complaint for more than 3 months (long-term back pain). 34.5% of the patients with back pain suffer from radiating pain.

Results

Patients with short-term back pain suffer more from impairments in muscle tone and range of joint of motion. Besides they suffer frequently from disabilities in their daily life. These patients are treated for a shorter period but more frequently than patients with long-term back pain. In the treatment of patients with short-term back pain physical therapy modalities and manual therapy are more often used than in the treatment of long-term back pain.
The improvement of muscle strength is often chosen as a treatment goal in long-term back pain. Exercise therapy and massage are more often given with long-term back pain.
Patients with radiating back pain are in general somewhat older and are subject to many disabilities. In the treatment of these patients, more attention is paid to pain reduction. In the treatment of these patients considerable use is made of physical therapy modalities and manual therapy.

Conclusions

Although the differences found are not very large the choice of treatment seem to depend more on the duration of the complaint than on the presence or absence of radiating pain.

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REVIEWING THE LITERATURE: AN INTERNATIONAL COLLABORATIVE ACTIVITY

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There is an enormous amount of literature on the effectivity of health care, and it is increasing rapidly. It is unreasonable to expect people such as clinicians, policy makers or patients who want reliable information about the effects of health care to gain all the relevant evidence from reports of original research. Most people must rely on reviews of the primary research as a way of coping with the information overload confronting them.
Unfortunately, the quality of reviews in the past has left much to be desired. This is because most reviewers have not approached their task systematically, with respect for scientific principles. As a result, advice on some life-saving therapies has been delayed for more than a decade, while other treatments have continued to be recommended long after controlled research has shown them to be either ineffective or actually harmful.
State of arts reviews which summarize all available evidence from randomized clinical trials (RCTs) are necessary for:
- the provision of the most optimal health care by clinicians
- the decisions of policy makers and financers of health care
- planning of relevant new research.

Up to date reviews need to be produced, and have to be kept actual. This continuous task cannot be done by one or two persons, but requires cooperation by interested and enthousiastic individuals all over the world.
The Cochrane Collaboration encourages groups of people to start collecting and reviewing all RCTs (or if not available other reliable evidence) in a specific field. These review groups are responsible for providing and keeping an up to date overview of the available evidence in a specific field.

Meta-analysis in the field of physiotherapy

A large number of review groups have recently started their activities in collecting and reviewing the literature. Some groups concentrate on health problems (like stroke, diabetes, pregnancy and childbirth), other groups focus on specific interventions (nursing, physical therapy) or fields (primary health care, elderly people).
Collaboration is of ultimate importance. There is a lot of work to be done, and that can only be done by collaboration of motivated and enthousiastic people. Moreover, by using two or three different entries to cover the total health care field, there is overlap, for which collaboration is the answer.
The field of physiotherapy is coordinated by the department of Epidemiology in Maastricht. This coordination consists of:
- searching specialist journals for relevant studies;
- convening explorative meetings of people within a broad field, and facilitating the subsequent evolution of more focused, problem based collaborative groups;

- helping to ensure that priorities and perspectives in the field of interest are reflected in the work of collaborative review groups;
- compiling specialized databases to service all specific needs of people in the field concerned using all relevant reviews.

Example of a meta-analysis on stroke

The meta-analysis on the effectivity of exercise therapy after stroke is an example of an overview on the crossing of stroke and physiotherapy.
Stroke is a fairly common disease in the Netherlands: an incidence of 40.000 patients a year is reported. Treatment of stroke patients happens often multi-disciplinary, in which physiotherapy plays an important role. Specialist stroke units, intensive treatment regimens and specific neurologic exercises are used to hasten recovery.
We identified 31 randomized clinical trials, of which 27 used an adequate randomisation procedure.
The methodologic quality was rather poor. A median score of 32 points out of 100 was obtained (range 62-11 (points). Methodological flaws like lack of blinding, small numbers of patients and low prognostic comparability within groups occurred often. Outcome was related to activities of daily living (ADL).
We found that intensive therapy hastens recovery and achieves higher ADL-scores in the short (less than three onths) and long term (longer than one year) follow-up after stroke. Exercise therapy accompanied by EMG/bio-feedback stimulation compared to exercise therapy alone showed the same results. No difference in efficacy could be found between specific neurologic treatment regimens like Bobath, PNF and Brunnstrom.
We conclude that management of stroke patients with intensive therapy is associated with higher ADL-scores (a better level of recovery).

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TECHNICAL ERROR MEASURING VERTEBRAL ROTATION ON X-REAYS OF SCOLIOTIC SPINES

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Introduction

The measurement of vertebral rotation according to Perdriolle is widely used in the French-speacking and Anglo-American countries. Even in this measurement technique there may be a relatively high estimation error because of the not very accurate grading in steps of five degrees. The measurement according to Raimondi seems to be easier to use and shows a better accuracy with two-degree steps. The purpose of our study was to determine the effectivity of both common measuring methods.

Methods

The apex vertebra of 40 curves on 20 ap-radiographs were measured by using the Perdriolle torsionmeter and the Regolo Raimondi. Interrater and intrarater reliability were computed.

Results

The thoracic Cobb angle was 43 degrees, the lumbar Cobb angle 36 degrees. The average rotation according to Perdriolle was 19.1 degrees thoracic (SD = 11.14), lumbar 12.7 degrees (SD = 11.21). Measurement of vertebral rotation according to Raimondi showed an average rotation of 20.25 degrees in the thoracic region (SD = 11.40) and lumbar of 13.4 degrees (SD = 10.92). The intrarater reliability was r = .991 (Perdriolle) and r = .997 (Raimondi). The average intrarater error was 1.025 degrees in the Perdriolle measurement and 0.4 degrees in the Raimondi measurement. Interrater error was at average 3.112 degrees for the Perdriolle measurement and 3.630 degrees for the Raimondi measurement.

Conclusions

This shows, that both methods are useful tools for the measurement of vertebral rotation for the experienced clinician. The Raimondi ruler is easier to use and shows a slightly better reliability.

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THE EFFECT OF USING A TWO-STEP VERBAL CUE TO A VISUAL TARGET ABOVE EYE LEVEL ON THE PARKINSONIAN GAIT: A CASE STUDY.

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Introduction

The purpose of this single case study was to examine the effects of visual cuing to a target above eye level on the Parkinsonian gait. In Parkinsonians, research has shown that movement improves when employing the visual feedback mechanism, by using visual cues. Laboratory studies, using visual cues to the floor have shown an increase in stride length and velocity. Combining the visual feedback mechanism with a more erect posture evoked from looking up to a target, may facilitate a more efficient use of postural mechanisms controlling balance and equilibrium.

Methods

The subject was an 85 year old woman at stage 3 Hoen and Yarh Parkinsonian scale. She walked independently indoors but used a Rollator walker outdoors. Her gait was characteristically Parkinsonian. Three separate studies were conducted, without an assistive device, consisting of 2, 11 metre measured walks: 1) No cue 2) with the verbal/visual cue. The starting position, targets, location and verbal cue were standardized for each study. The walks were videotaped to obtain quantitative measures of step length, step time and number of steps.

Results

From the above parameters, the totalled uncued and cued walks, showed an increase of 77% in step length and 75% in velocity respectively, in the cued walks. Step time remained unchanged. The video clips demonstrated a more efficient and stable gait, with improved trunk rotation, elimination of festination, decreased double support time, reintegration of arm swing, rhythm, heelstrike, and a more erect posture. The functional outcome was the ability of the patient to ambulate outdoors without a walking aid for 0.25 Km.

Conclusions

Parkinson's disease has a devastating effect on the patient's ability to walk. Visual targeting above eye level was an effective strategy for this patient, and offers the potential for prolongation of independent ambulation, preventing falls and deferring institutionalised care for patients with Parkinson's disease.

Visual targeting above eye level may serve as an important clinical tool in gait training of Parkinsonian patients.

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EDUCATION FOR QUALITY IMPROVEMENT IN PHYSIOTHERAPY: AN ACCOUNT OF INITIATIVES IN NORTHERN IRELAND

D. Whittington, J. Bell, R. Malcolm

Introduction

The significance of education in the improvement of health care quality in general and of physiotherapy quality in particular is established. The concept of the 'reflective practitioner' is explored and it is suggested that day to day professional reflection on practice, development of a research basis for intervention and involvement in systematic quality assurance and improvement are distinct but symbiotic activities. The importance of a coherent structure of educational provision which mirrors these activities and their relationship is stressed.

The Northern Ireland Experience

The development of undergraduate and postgraduate curricula for Physiotherapy in the University of Ulster is described. Approaches to the development of research interests and skills are described and a case is made for more research addressing practice directly and for systems of research support which allow physiotherapists to maintain their involvement in practice while simultaneously developing research projects. Curricula for professional development degrees involving physiotherapists alongside other health care professionals are also descrbied. Particular attention is given to units of study devoted to development of knowledge and skills in quality assurance. Systems for the facilitation of clinicl audit and other quality initiatives among practising physiotherapists are also described and a number of specific quality initiative are outlined. The importance of clearly articulated systems of acces to, accreditation of, and support for quality related education is stressed.

Conclusions

A framework has been established for education for quality improvement in Physiotherapy in Northern Ireland and there have been substantial achievements to date. Further developments are in hand and exchange of information and ideas with colleagues in other locations is likely to be of mutual benefit.

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QUALITY OF MEASURING. MEASUREMENT INSTRUMENTS FOR ASSESSING TREATMENT EFFICIACY IN PATIENTS WITH CHRONIC COMPLAINTS OF THE KNEE

R. Wiegerink, F.G.J. Oosterveld, R.A.B. Oostendorp

The development of measurement instruments for research into treatment efficacy most often takes place within Hospital or University based clinics. Many of these instruments, such as instruments to assess isokinetic muscle strength, electrogoniometers, and 3-D analysis systems, are not directly applicable, or too expensive, to be used in private practices within primary health care.

In order to assess efficacy of treatment in patients with chronic complaints of the knee, the commonly used measurement techniques should meet the quality criteria such as, standardisation, reliability, and validity. Within the project 'Physiotherapy Development Network' (FON), a set of instruments has been selected, which can be used in physiotherapy care within the primary health care setting. For the variables muscle strength, active range of motion, and a number of activities and skills such as walking, climbing stairs, and squatting, protocols have been developed, which in cooperation with physiotherapists working in primary health care, have been assessed for their usefulness. Subsequently these protocols and a Dutch revised version of the 'Knee disorders subjective history' questionnaire have been assessed for their intra- and interboserver-reliability in a joint project.

In a group of 30 patients with chronic complaints of the knee joint of a degenerative or inflammatory nature, the measurements were taken twice by two therapists with a time interval of 2-3 days. In the presentation the measurement protocols, the measurement results, and conclusions of the reliability study will be presented.

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THE EFFECTS AND COSTS OF PHYSIOTHERAPY AND CORTICOSTEROID INJECTIONS FOR CAPSULITIS OF THE SHOULDER: DESIGN OF A RANDOMIZED CLINICAL TRIAL

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Introduction

Capsulitis of the shoulder is frequently encountered in Dutch primary health care. The general practitioner (GP) may treat the patient with either local corticosteroid injections or refer the patient to a physiotherapist. The objectives of this randomized clinical trial are:

1. To compare the effects of physiotherapy and local corticosteroid injections in patients with capsulitis of the shoulder.
2. To study the cost-effectiveness of both interventions.

Study population

120 patients with capsulitis will be selected. The main selection criteria are:

- The patient has not been treated with physiotherapy or injections during a period of six months preceding the trial.
- The complaints are not relieved after treatment with analgesics during two weeks.

Interventions

1. Standardized physiotherapy consisting of passive mobilization and exercise therapy, supplemented with ultrasound or electrotherapy; 10 sessions over a period of 5 weeks.
2. Intra-articular injection of 40 mg triamcinolone administrered by a GP. No more than three injections will be given over a period of 5 weeks.

Outcome measures

The main outcome measures are: global perceived benefit (patient), severity of shoulder complaints (blinded observer), severity of pain at night and during the day (patient) and functional status (shoulder disability questionnaire).

Secondary outcome measures are: range of movement of the shoulder joint (blinded observer), general health status (Nottingham Health Profile), sick leave, use of analgesics.

Follow-up

Outcome measures are assessed once during treatment (three weeks after randomization) and at 6, 13, 26 en 52 weeks after randomization. Measurements after 13 and 52 weeks are restricted to mailed questionnaires.

Costs

The direct and indirect costs of both interventions will be assessed simultaneously with the assessment of outcome. Direct costs are costs of personnel, equipment, medication, administrative charges, travelling expenses, domestic help, etc. Indirect costs are costs which are produced by loss of productive time as a result of sick leave, time spent during therapy and disability.

In addition to a comparison of the effects of physiotherapy and injections, a cost-effectiveness analysis will be carried out. Cost-effectiveness ratios will be calculated, e.g. the costs per recovered patient or the costs per unit of improvement as measured by the NHP.

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