SHOULDER REHABILITATION AT A DISTANCE – THE PATIENTS AND THERAPISTS PERCEPTIONS!

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Conclusion

This comparative study regarding physical therapy at distance in the home after shoulder replacement is ongoing and have shown preliminary promising, good results for the patients as well as for the care of health.

There are clear benefits to be gained from the telemedicine technique in terms of user-friendly and reliable equipment for the patient as well as the physiotherapist at the hospital and the local physiotherapist.

Objectives

Patients who are undergoing a shoulder joint replacement are routinely at risk for pain, swelling, stiffness, diminished muscle strength, loss of endurance, dyskinetic motor patterns and inflexibility. The number of shoulder operations has increased and the operation results have significant improved the latest decade (Madhok et al,1993, Deuschle and Romeo,1998. Brems, J. J., Wilde, A. H. 1991). The physical therapist at the hospital that has experience of this operation intends to minimise the risks with specific treatments before they become complications (Bruzga and Speer 1999).

Shoulder arthroplasty operations are carried out at Sunderby hospital in Norrbotten, Sweden. The county is big and the patients often have long distances to the special physical therapy. Early motion after the shoulder replacement helps the patient to achieve the best possible shoulder function (Matsen 2002). Traditionally, rehabilitation programs have been conducted in hospital or health care facilities and attempts to improving patient compliance have come to include education for physical therapists in rural distance.

After the operation shoulder exercises are best performed gently several times a day on ongoing basis. Our experience is that this demands a lot of motivation, knowledge and possibility to receive or give treatment from the patient and the local physical therapist.

The number of patients needing rehabilitation has increased in recent years and the available resources have unfortunately been reduced. Some patients feel less motivated to exercise at home when they do not have direct medical supervision. The therapist cannot see the patient's progress at a distance, neither change exercises nor raise the level of difficulty. It is also hard to verify that the patient has done the prescribed home rehabilitation. This problem can lead to permanent disabilities in otherwise reversible conditions (Burdea 2000).

It is in the health provider's best interest, as well as the consumer's, to do whatever is needed to promote wellness and prevent costly secondary conditions (Burns -98).

Lathan (et al) describes telerehabilitation in the context of three models: telecounceling and training as "ongoing rehabilitation education and training services by means of electronic communication systems", telemonitoring and assessment as "remote monitoring of the progress of rehabilitation and the health consequences of disability by electronic means" and

teletherapy as “delivery of therapeutic interventions which can be implemented electronically at a distance.

Burns et al 1998) means that telerehabilitation refers to the use of telecommunication technology to provide rehabilitation and long-term support to people with disabilities. Palsbo & Bauer (2000) refer that telerehabilitation can be used for remote physical, occupational and mental therapy.

This study describes the experiences of a specialty hospital program serving persons after shoulder replacements telerehabilitation in real time as a tool to provide physical therapy at distance in the home.

Methods

Using an adapted videoconference system, this project tests a new method to offer patients who have undergone a shoulder replacement two months of physical therapy on distance including transfer of information from the physical therapist at the hospital to the local physical therapist. Still at the hospital, the physical therapist shows the patient at home how to do the exercises.

The study tests the application of audio and video technology to provide remote physical therapy as well as to measure parameters such as the patient’s pain, range of movement, functional ability, health, life quality and experiences of the method.

* A comparative study with quantitative and qualitative evaluation.
* Physical therapy on distance by videoconference-equipment for two months.
* Transfer of information on distance from the physical therapist at the hospital to the local physical therapist at the patient’s home at the end of the two-month period.

Evaluation before the operation and after two months physical therapy on distance:

- Visual-Analogue-Scale (VAS) that measures the patient’s self-estimated pain.
- Constant score is used to measure and test pain and shoulder function.
- A standard goniometric is used to measure active range of motion; elevation and abduction in the shoulder joint. Measurement of external rotation is made in this study with the upper arm in a resting position along the body. The internal rotation is measured with the hand behind the body where the end of the thumb is noted.
- Function of the shoulder-arm, which consists of objective measures of range of motion and function in the shoulder. Moreover symptoms are estimated by the Borg-symptom scale.
- A Swedish version of the Shoulder Rating Questionnaire (SRQ-S). This self-rating scale concerns health, pain, daily activities, recreational and athletic activities, work, satisfaction and areas for improvement.
- EuroQol (EQ-5) which measures cost benefit/life quality. It shows the patients´ self-chosen range of mobility, self-care, usual activity, pain/discomfort and anxiety/depression.
- Life-quality-score Short Form-36 (SF-36); a standard questionnaires regarding general health status.
- A questionnaire that shows expectations, experiences, cost-benefit, advantages and disadvantages with the telemedicine-technique (Made by Lisbeth Eriksson).

Evaluation after two months physical therapy on distance:

- Qualitative deep-interviews of the patients, the physical therapists at the hospital and the local physical therapists according to the interview guide from Shepard & Merriam.
- Descriptive and comparative analyses are made by content analysis.

Technique equipment
Videoconference-equipment by Integrated System Digital Network (ISDN); 128 kb, 256 kb, 384 kb; TV-monitor, a remote-controlled camera, codec, microphone, a remote control and lighting is installed at the patient's home as well as at the hospital. Through simultaneous transmission of sound and picture there are two-way-communication with full-colour- mobile picture; real time communication. The equipment is connected through the digital telephone network.

Material
- So far eleven patients with Rheumatoid Arthritis or Osteoarthritis (eight women, three men, (age 51-83), who have undergone a shoulder replacement at Sunderby Hospital, Norrbotten, Sweden.
- The intervention group of six patients has received physical therapy on distance.
- The control group of five patients has received the same physical therapy program self-administrated with regular check-ups by the local physical therapist.
- Physical therapists at the hospital and the local physical therapist have been interviewed.

Results
The comparative study regarding physical therapy on distance after shoulder replacement has shown good results. The study continues, but so far the telemedicine technique has been shown to be user-friendly and reliable. Patients, physiotherapist at the hospital and local physical therapists are all satisfied.

The preliminary results show that the distance group had less pain and better shoulder function after two months physical therapy compared to the control group.

The interviews show that the method gives a feeling of being in the same room in spite of the distance. The patients perceived respected in the privacy and there were no ethic problems. The patients perceived a high life of quality thanks to this method. We found both a rehabilitative and cost-benefit effectiveness as it was possible to shorten the time at the hospital for the patients and to make early, frequent and continued physical therapy possible. Thanks to the method there were less travel and the patient's inconvenience was reduced. The method makes new demands on the role of the physical therapist.
The method does not compensate for the human contact but is seen as a new effective tool in physiotherapy and a possibility for the future.

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