Specific spinal exercise substantially reduces the risk of low back pain recurrence

Synopsis


**Question:** Can specific spinal exercise reduce the risk of a future episode of low back pain (LBP) in patients with acute LBP?  
**Design:** Randomised controlled trial.  
**Setting:** Brisbane hospital.  
**Patients:** Subjects with a first episode of unilateral mechanical LBP of less than three weeks duration were recruited from the hospital accident and emergency department. Thirty-nine subjects were randomised, 39 completed the one year follow-up, and 36 completed the three-year follow-up.  
**Interventions:** The medical care group received advice on bed rest, absence from work, prescription of medication and advice to resume normal activity as tolerated. The exercise group in addition performed specific localised stabilising exercises, two sessions per week for four weeks. The exercises trained the isometric holding function of multifidus and were performed with co-contraction of transversus abdominis. Contraction of multifidus was verified by ultrasound.  
**Main outcome measures:** Recurrence of LBP was assessed by a blinded assessor by telephone at one and three year follow-up.  
**Main results:** At one year follow-up, six of the 20 subjects (30%) in the exercise group reported a recurrence of LBP in the previous year compared with 16 out of 19 (84%) in the control group. The risk ratio and 95% CI was 0.36 (0.18 to 0.72); the number of subjects needed to be treated with exercise to prevent one recurrence (NNT) was 2; 95% CI 1 to 4. By the three year follow-up, 9/20 of the exercise group had a recurrence versus 16/19* in the control group: risk ratio and 95% CI = 0.56 (0.33 to 0.96); NNT and 95% CI = 3 (2 to 11).  
**Conclusion:** For patients with acute first episode LBP, specific spinal stabilisation exercise substantially reduces the risk of recurrence.  

[Relative risk and NNT calculated by abstractor from data in paper. *A conservative approach, that potentially underestimates the effect of exercise, was taken with drop-outs. All drop-outs were coded as recurrences at Year 3, of these, two reported an episode of LBP in the first 12 months.]

Commentary

This study represents a new trend in physiotherapy research, in which more specific exercise strategies targeting muscle endurance, co-ordination, or stabilisation and strength are being investigated (eg Chok et al 1999). This long term follow-up study extends the authors’ previous work, focusing on the restoration of control of the multifidus muscle to treat local segmental dysfunction, believed to be impaired after an episode of acute unilateral LBP (Hides et al 1996). In their original report, short-term (four weeks) muscle recovery was more rapid and more complete in subjects who received stabilisation exercises, although other outcome measurements were similar for the two groups. The authors have now demonstrated a significantly lower recurrence of LBP after one and three years in the exercise group. This is a potentially important finding that could substantially influence acute LBP management.

While recurrence of LBP is an important endpoint, no data regarding other relevant endpoints such as disability or sick days is provided. In addition, it may have been of value to attempt verification of subject responses in some way, eg with GP or physiotherapist visits. While recurrence was assessed by blinded assessor, the lack of blinding of the subjects as well as the long period of time subjects were asked to recall (past one and two years) may have influenced responses. As the study sample comprised subjects with a first episode of acute LBP presenting to an accident and emergency department, it would be important to verify generalisability of findings to those who initially present to more usual primary care providers. It is also difficult to know how easy it would be to apply the intervention in routine physiotherapy practice, given that the precise regime was not described and contraction of multifidus needed ultrasound confirmation in the trial.

Rachelle Buchbinder and Jan Hoving  
Cabrini Hospital and Monash University

References

Patients with back pain value the process, as well as outcomes, of care

Synopsis


**Research question:** To describe aspects of physiotherapy which were valued by patients who had recently been treated for back pain. **Study Design:** Qualitative study using semi-structured interviews undertaken by one researcher. Saturation point was reached in each interview when no new major insights were revealed and issues were repeated from other interviews. **Setting:** Two hospital sites in the one town (one community hospital and one general hospital). **Patients:** One hundred and twenty-five patients were purposively sampled by mail from a list of patients who had been referred in the previous year to the participating hospitals for physiotherapy management of low back pain. Thirty-four patients volunteered to participate in interviews. **Method of analysis:** Transcribed interview data were analysed using a framework analysis approach to generate key themes. Key themes were summarised into key dimensions of satisfaction with physiotherapy. **Results:** The key dimensions of satisfaction, and their constructs, were identified as: the professional and personal manner of the therapist (friendly, sympathetic, listening, respectful, skilled, thorough, inspired confidence); the explaining and teaching which occurred during each episodes (identifying the problem, self management, process of treatment, prognosis); how much the treatment was consultative (patient involvement in the treatment process, response to questions, responsive to self help needs); the structure that shaped access to and time with the therapist (such as short waiting time, open access and enough time); and the outcome (treatment effectiveness and gaining self help strategies). **Conclusion:** There is a wide range of issues about which patients make judgements about the quality of physiotherapy. These involve satisfaction with the process as well as the outcome.

Commentary

Seeking understanding about satisfaction with service delivery from a consumer’s perspective is an important part of quality processes (Jolley 1995). There is extensive literature about the concept of satisfaction, yet there remains an absence of an agreed definition of what the concept means. As May and others have pointed out, it is agreed that satisfaction is a multidimensional concept, it is a reflection of quality in process and outcomes of care; and many factors, including things such as information received, contribute to a perception of satisfaction from the consumer’s perspective (Mahon 1996, May 2001).

The study by May provides valuable insight into the factors that clients receiving physiotherapy for back pain perceived as being important for their care. What is of particular interest in this study is the collection of data with semi-structured interviews. Interview transcripts from 34 patients provided a rich source of data, out of which common themes were extracted. This particular approach is appropriate when the human experience of a phenomena is being examined (in this case experience of physiotherapy services).

Findings from this study and others indicate that satisfaction is contextualised by expectations, values and beliefs, and time. Determining what patients expect from physiotherapy care before attempting to measure their satisfaction also is important. May asked important questions about expectations and this set the context for further questioning and analysis. While most researchers agree that patient satisfaction is a multidimensional concept, they also agree that satisfaction is inversely related to expectation. That is, if expectations are low on entry into the health system, then satisfaction will likely be greater. Therefore the importance of establishing expectations of patients is important if satisfaction is used as a measure of quality (Mahon 1996).

**Esther J May**

*University of South Australia*

References


Motor Relearning Program approach improves short-term motor outcomes and reduces hospital stay after stroke

Synopsis


Question: Does the Bobath approach or Motor Relearning Program (MRP) in rehabilitation of acute stroke cause any difference in motor function, activity of daily living (ADL) or quality of life? Design: Randomised controlled trial. Randomisation was stratified according to gender and side of lesion. Setting: One general hospital in Norway. Patients: Sixty-one out of 185 eligible stroke patients (WHO criteria) were included in the study and randomised to MRP (n = 33) or Bobath (n = 28). Criteria for inclusion was first-ever stroke with haemiparesis verified clinically and by CT scan. Exclusion criteria were more than one stroke, subarachnoid bleeding, tumors, other severe medical conditions or five or more points on each of the scores in the Motor Assessment Scale (MAS). The patients were considered representative of the general population. Eight patients (13%) were lost to follow-up. Interventions: The two physiotherapy programs were standardised according to background literature. Workshops and discussions were organised with the physiotherapists to co-ordinate treatment according to the two different approaches. The patients in both groups received physiotherapy five days a week for a minimum of 40 minutes while hospitalised. Besides physiotherapy, all patients received the same multidisciplinary treatment according to recommendations for stroke units. After discharge, the aim was to continue the same physiotherapy approach in different settings. Outcomes: Primary outcomes were assessed three days after admission (baseline), two weeks later and three months post stroke. Motor function was assessed by the 48-point Motor Assessment Scale (MAS) and Sedring Motor Evaluation Scale (SMES). Activities of daily living was measured by the Barthel ADL Index and quality of life by the Nottingham Health Profile (NHP). Outcome assessor was blinded to treatment allocation. Secondary outcome was length of stay in hospital, use of assistive devices and patient accommodation after discharge. Result: Groups were comparable at baseline. At two weeks, the MAS score was significantly better in the MRP group than in the Bobath group (mean score 32 vs 23, p = 0.05), but there was not a significant difference at three months. No significant differences were found for the other primary outcomes at two weeks or three months follow up. The MRP group stayed in hospital for a significantly shorter period than the Bobath group (21 vs 34 days, p = 0.008). Conclusion: The MRP has small short term benefits in motor function compared with the Bobath approach, and shortens hospital stay. The MRP and Bobath approaches produce similar outcomes at three months post stroke.

Commentary

The cost of stroke is considerable to both the individual and to society, and consequently effective treatment of stroke victims is of utmost importance. So far, a number of studies have reported that stroke patients benefit more from medical and paramedical treatment in an organised stroke unit than patients on a general medical ward. However, there is a lack of clear evidence as to which method of physiotherapy is optimal in stroke rehabilitation (Kwakkel et al 1999). Currently, physiotherapy practitioners often combine elements from various approaches depending on the clinical picture of the patient.

The study by Langhammer and Stanghelle of the effectiveness of the Bobath approach versus the MRP approach focuses on the ongoing debate of whether one approach is preferable to the other. Although the considerably shorter stay in hospital is undoubtedly important considering the cost of hospital beds, more information is needed before recommending the exclusive use of MRP over the Bobath approach. In our view, an interesting point in the present study is that from an initially slow start regarding motor function the Bobath group caught up with the MRP group. The former group showed relatively more improvement between the second week and third month than the MRP group. The important question is, then, what the outcome will be after a longer period of time has elapsed.

The randomised controlled trial by Rønning and Guldvog (1998) of 251 stroke patients followed up for seven months may also be relevant to this discussion. The authors concluded that patients benefited from subacute rehabilitation in a hospital-based rehabilitation unit compared with municipality-based treatment.

The findings of the present study are not sufficient to determine which treatment approach is likely to be of most benefit to patients and society. We look forward to a follow-up study by Langhammer and Stanghelle throwing more conclusive light on this challenging question.

Marit Gustavsen, Reidun Jansen, Astrid Kjendahl and Anne Lorentzen
Sunnnaas Rehabilitation Hospital, Norway

References