Intensive home-based rehabilitation following hip fracture is no more effective than usual home-based rehabilitation

Synopsis


Objective: To compare the effects of an intensive, multicomponent home-based rehabilitation program following hip fracture, with usual home-based physiotherapy. Design: Assessor-blinded randomised controlled trial with six and 12 month follow up. Setting: Patients’ homes in the USA. Patients: Three-hundred-and-four people aged over 64 years, discharged home within 100 days of surgical repair of hip fracture, without dementia or terminal disease. Follow up was of 281 subjects at six months and 271 at 12 months. Intervention: Subjects in the experimental group received up to six months (median 13 visits) of individualised therapy from a physiotherapist and by nursing staff in consultation with an occupational therapist. Therapy included monitored resisted strength training for upper and lower extremities, task training, provision of assistive devices, environmental modifications, interventions to increase confidence and motivation, and caregiver education. Subjects in the usual care group received physiotherapy provided by home care agencies (median 13 visits), but usually not occupational therapy. Physiotherapy usually consisted of gait and transfer training and unresisted exercise and range of motion exercises. Main outcome measures: Self-reported function in seven basic self-care and seven home management tasks. Each activity was rated as 0 (does not do), 1 (with help) or 2 (without help), and scores were aggregated. Secondary outcomes included timed task performance, measures of ability to balance and quality of gait, and 1 RM measures of elbow and knee extensor strength. Main results: The proportion of subjects who recovered to pre-surgery function levels was similar in the experimental and usual care groups. For basic tasks at the six-month follow up, the proportions were 71 per cent and 75 per cent respectively (reduction in rate of recovery = 5 per cent, 95 per cent CI 6 to 15 per cent [abstracter’s analysis]). Similar proportions of subjects attained complete functional independence (67 per cent and 71 per cent). The same results were observed with home management tasks and at 12 months follow up. There were no clinically significant differences between groups in any secondary outcome variables. Conclusion: An intensive, multicomponent home-based rehabilitation program produces no better functional outcomes following hip fracture than a usual program of home-based rehabilitation.

Commentary

This is the first large-scale randomised controlled trial to investigate home-based rehabilitation after hip fracture. The authors have sought to develop a “best practice” physiotherapy and functional therapy intervention program (Tinetti et al 1997). Unfortunately, this study found the intensive program to be no more effective than the usual home-based rehabilitation intervention after hip fracture.

In terms of physiotherapy intervention, the major difficulty in interpreting the results of this study is that intensity and content of the “usual” physiotherapy program are not well described. This makes it difficult to compare the usual program with our own usual practice. We do know that the usual care group received a median of 13 physiotherapy visits in the six months after hip fracture. This probably compares favourably with usual practice in many areas. We are also told that the intensive intervention group was more likely to be prescribed resisted strengthening exercises than the usual care group. However, the multi-faceted nature of this study prevents us drawing conclusions about the merits of this type of training after hip fracture.

One clear difference between the groups was that the intensive program involved “functional therapy”, administered by nursing staff in consultation with occupational therapists. It is important to note that this functional therapy was actually given in addition to occupational therapy visits, home nursing and home health assistance. Therefore the lack of an effect of the intensive intervention does not indicate that there is not a role for occupational therapy or nursing intervention after hip fracture. We can more safely conclude that, when given in addition to multi-disciplinary visits, there is little role for functional training of this type in this population.

While it is pleasing that the important field of rehabilitation after hip fracture is receiving more attention from researchers, it is difficult to draw conclusions for particular aspects of clinical practice from this study which compares two multi-faceted programs. Studies focusing on particular aspects of interventions will be of more use in guiding clinical decision-making.

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Reference

Perineal massage increases the likelihood of delivering with an intact perineum in women without previous vaginal birth

Synopsis

**Objective:** To establish whether perineal massage increases the chance of delivery with an intact perineum.

**Design:** Randomised controlled trial stratified by history of previous vaginal birth. **Setting:** Teaching hospitals in Quebec. **Subjects:** One-thousand-and-two-hundred-and-fifty-seven women between 30 and 35 weeks gestation. Exclusion criteria included high risk of caesarean delivery, multiple gestation, placenta previa, severe foetal growth restriction, breech presentation and pre-eclampsia, and current use of massage. **Intervention:** The massage group was taught perineal massage by a nurse using a foam model, diagrams and written instructions. The massage was to be performed for 10 minutes daily and, to encourage compliance, the nurse telephoned subjects in the massage group 1 and 3 weeks after randomisation. Participants were asked to complete a daily treatment diary and a post-partum questionnaire. The control group received usual obstetric care. Participants were asked not to reveal group membership to their physicians, and physicians were asked not to seek this information from subjects. **Main outcome measures:** Immediately after vaginal delivery the attending physician completed a standardised form to record perineal trauma: episiotomy, perineal lacerations and sutured vulvovaginal lacerations other than perineal. A few days after delivery the women reported their feelings of control and satisfaction with the delivery by completing the Labor and Delivery Satisfaction Index and the Labour Agency Scale. Analysis was by intention to treat. **Main results:** Follow-up data were available for 99.6 per cent of subjects, of whom 1304 delivered vaginally. Despite poor compliance (39 per cent performed massage on 2/3 of potential days) there was significantly less perineal trauma for the massage group in women without previous vaginal birth (300/411 versus 354/417, number needed to treat with massage to prevent one case of trauma = 11; 95 per cent confidence interval 7 to 26 [abstracter’s analysis]). In women with previous vaginal delivery there was no difference in trauma rate 153/235 versus 163/241. There was no difference between the groups in episiotomy rates, women’s sense of control and satisfaction with delivery. **Conclusion:** Perineal massage increases the chance of delivery with an intact perineum for women without previous vaginal delivery but not for those with a previous vaginal birth.

Commentary

This large randomised controlled trial is an excellent attempt to determine the efficacy of a technique commonly taught during preparation for childbirth classes. A strength of the study is that it has included both primiparous and multiparous women.

The study found that women who had performed perineal massage had an increased likelihood of having an intact perineum, and this is commendable. However, the study failed to detect a difference between groups in episiotomy rates, first or second degree tears, or third or fourth degree tears either with or without an episiotomy. This is consistent with the Carroli et al (1999) systematic review which found that a restrictive episiotomy policy did not result in changes in major outcomes of severe vaginal or perineal trauma, pain, dyspareunia or urinary incontinence.

A long term follow up of post-partum morbidity of this study’s subjects would provide important information. Previous studies have demonstrated significantly delayed pudendal nerve terminal motor latency in the post-partum period, even in women who do not have perineal trauma (Allen et al 1990). The presence or absence of an intact perineum at delivery is important, but factors such as subsequent bladder and bowel dysfunction, perineal pain and the cumulative stresses on pelvic floor structures that may occur in spite of an intact perineum, and which have much longer term implications, are probably of greater importance.

Whilst the study’s findings are useful, one would need to be careful to ensure that women receive accurate information about the value of perineal massage. Whilst they have a moderately improved chance of having an intact perineum, they may not have a decreased risk of having other perineal or vaginal trauma.

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References


Pulmonary rehabilitation program produces small, sustained increases in exercise capacity in outpatients with COPD

Synopsis


Objective: To assess long-term effects of a pulmonary rehabilitation program for outpatients with chronic obstructive pulmonary disease (COPD). Design: A randomised, assessor-blinded trial with 12 month follow up.

Setting: Pulmonary medicine department in a university hospital in Sweden. Patients: Fifty-five patients with clinically stable COPD, aged 45 to 75 years, FEV1 < 50 per cent of predicted, pO2 > 60mmHg, without other disabling diseases. Five patients were lost from follow up.

Intervention: The exercise group exercised in the outpatient department for one year. Exercise was initially twice weekly but was gradually reduced to monthly. Patients were taught purse-lipped breathing and diaphragmatic breathing, performed 25 minutes of two-minute intervals of progressive stationary cycling up to Borg scores of 15, and were instructed in a daily home program of walking and upper limb exercise (mobility exercises and resisted exercise). The control group received “usual outpatient care”.

Main outcome measures: Exercise capacity (measured with the 6min walking distance and symptom-limited power output with cycle ergometry), St George Respiratory Questionnaire (Symptoms, Activity and Impacts sub-scales and total score, all expressed as a percentage), disability (a Swedish version of the Sickness Impact Profile), and emotional wellbeing (Mood Adjective Checklist). All measures were assessor-blinded except walking distance.

Main results: Twenty patients in the exercise group were classified as compliers. At follow up on analysis by intention-to-treat, the exercise group had greater 6min walking distance (difference = 40.2m, 95 per cent CI = 9.5 to 70.9) and power output on the cycle ergometer (difference 8.9 W, 95 per cent CI 2.0 to 15.8 [CIs are abstracter's analysis]). There were no significant differences between groups with regard to St George Respiratory Questionnaire scores, disability or emotional wellbeing.

Conclusion: An extended pulmonary rehabilitation program produces small, sustained increases in exercise capacity, but not in respiratory symptoms, functional capacity, activity levels, disability or emotional wellbeing, for clinically stable outpatients with chronic obstructive pulmonary disease.

Commentary

Pulmonary rehabilitation programs aim to optimise the function of patients with respiratory limitations to exercise. This well designed, randomised controlled trial of a group of patients with severe COPD (FEV1 ~ 30 per cent predicted) indicates that a six-week training program followed by a monitored home program improved walking distance and bicycle work load to levels deemed clinically worthwhile. The program is typical of those used within Australia.

It is disappointing that improvements in quality of life (QOL) measures, and in particular improvement in the activity component of quality of life, were not found. This may be because training did not reflect the tasks in which limitations occurred (Bendstrup et al 1997). Patients trained their lower limbs on a bicycle and their upper limbs with Theraband exercises (not described). It is questionable if Theraband exercises replicate upper limb activities of daily living (ADL), and if cycling reflects walking. Patients were encouraged to walk every day at home, however there is no indication of compliance.

Most severely limited patients stop exercising due to dyspnoea. It has been proposed (Bendstrup et al 1997) that exercising at the ventilatory limit of dyspnoea produces habituation to dyspnoea. The interval training work rate of 85 per cent of maximum workload may not be an adequate stimulus to produce habituation. Provision of oxygen therapy whilst training may enable the patient to train at a higher intensity and longer duration, although the impact of this on performance of ADL has not been fully investigated. It is unclear how many patients trained with supplemental oxygen. Finally, as the authors suggested, measurement tools for QOL are not as sensitive as other tools (Bendstrup et al 1997, Goldstein et al 1994).

The success of this program lies in the lasting maintenance of improvements, good compliance, and low dropout rate. Often patients with severe COPD are not very compliant and dropout rates are usually higher. Perhaps the design of this program encouraged optimal compliance.

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References


Bed rest is an ineffective and potentially harmful treatment for many conditions

Synopsis


Objective: To locate evidence of benefit or harm for bed rest for any condition. Data sources: Studies were identified by searching Medline and the Cochrane Library (1996 to 1998) for randomised controlled trials with terms associated with bed rest. The electronic search was supplemented by citation tracking of located articles. Study selection: Trials were included if the main difference between treatment groups was the amount of bed rest prescribed. Trials of advice and education were excluded. No other limits were set for treatment, patient type, condition or health care setting. Main results: The search strategy located 2000 abstracts and 90 per cent of these were discarded from inspection of the title. Two hundred full papers were reviewed and provided 39 randomised controlled trials that described the effect of bed rest as either a prophylactic treatment after a medical procedure (eg following lumbar puncture or radiculography) or as a primary treatment (eg for acute low back pain or rheumatoid arthritis). In the 24 trials of bed rest following a medical procedure, no outcome showed a statistically significant benefit for bed rest whereas nine outcomes were significantly better for the control condition. For example, immediate ambulation rather than six hours of bed rest reduced the risk of nausea following lumbar puncture (odds ratio 0.51; 95 per cent confidence interval 0.28 to 0.93). In the 15 trials that evaluated bed rest as a treatment, there were no statistically significant benefits for bed rest versus control, whereas nine outcomes were significantly better for the control. For example following uncomplicated myocardial infarction, ambulation within the first three days, rather than bed rest for seven days, greatly reduced the risk of venous thrombosis (odds ratio 0.03; 95 per cent CI 0.003 to 0.35). Conclusions: There is no evidence that bed rest provides a benefit, whereas there is evidence of harm.

Commentary

The main finding of this review was that bed rest does more harm than good. The use of bed rest to treat acute low back pain increases disability. Bed rest, therefore, should not be recommended for patients with acute low back pain. Other treatment options, including advice to stay active, setting quotas for activity levels based on time, spinal manipulative physiotherapy and McKenzie exercises, have demonstrated efficacy (Maher et al 1999).

Less well known are the possible harmful effects of bed rest for people with rheumatoid arthritis. In this review, there was a trend for bed rest to produce harmful results compared with a program where ambulation was encouraged. Interestingly, exercise did not have deleterious effects on joint activity and disease state, a finding which is consistent with another recent systematic review (Van den Ende et al 1999).

The hazards of bed rest during first stage labour were also highlighted. Voluntary ambulation was shown to significantly improve labour in comparison with bed rest (eg ambulation decreased the odds of requiring an assisted delivery). Advice to remain active during the first stage of labour should, therefore, be incorporated in ante-natal education programs. The review made a distinction between bed rest as a treatment and rest imposed by symptoms (eg muscle weakness). There is evidence that people with disability-imposed bed rest benefit from early activation. For example, the early mobilisation and organised multidisciplinary care provided by stroke units decreases the risk of death or dependency after stroke when compared with medical ward care (Stroke Unit Trialists’ Collaboration 1999).

A challenge faced by all physiotherapists who are attempting to avoid bed rest for a range of patient populations is overcoming resistance to change. Physiotherapy is commonly one component of a complex treatment program. We therefore need to liaise closely with other health professionals involved in patient care so that bed rest can be reduced and patient outcomes improved.

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References

