Is a targeted falls prevention program effective in subacute hospital settings?

Synopsis


Question Is a targeted, multiple intervention falls prevention program effective in reducing falls and related injuries for elderly patients in a subacute hospital setting? Design Randomised controlled trial, with blinded measurer, incomplete blinding of participants and staff. Setting Three subacute wards in one Australian metropolitan rehabilitation hospital. Patients 626 consenting men and women aged 38–99 years (average 80 years, SD 9) recruited from 1040 consecutive admissions. 310 patients were randomised into the intervention group (33% men), and 316 into the control group (33% men). Medical histories included stroke, Parkinson’s Disease, cancer, congestive heart failure, osteoporosis, fracture. Interventions All patients received ‘usual care’ (weekly medical assessments, one hour daily physiotherapy and occupational therapy sessions (weekday), 24 hour nursing assistance, other allied health services as required). The control group received ‘usual care’ only, while the intervention group also received a program consisting of a falls risk alert card, information brochure, targeted exercise program, and hip protectors. Outcomes Number of falls, incidence rate of falls, fall-related injuries, measured during the length of the hospital stay (average 29–30 days, SD 22). Results The intervention group suffered 30% fewer falls than the control group ($p < 0.05$), and also demonstrated a decreased risk of falling (RR 0.78, 95% CI 0.56 to 1.06). 28% fewer falls in the intervention group resulted in injury ($p > 0.05$). Conclusion The targeted falls prevention program significantly reduced falls incidence in a subacute hospital setting.

Commentary

This methodologically strong study demonstrates the efficacy of a multidisciplinary intervention on incident falls in a large subacute hospital sample. Subjects in the experimental groups received a number of interventions based on their score in a validated fall risk questionnaire. This was compared to usual care in the same geographic location which creates potential for un-blinding bias, although programs were delivered by external staff in an attempt to counter this and, reassuringly, hospital staff guessed who was in the intervention group only slightly better than chance. The components of the program included a fall risk alert card above the bedhead; an exercise program delivered by physiotherapists including tai chi and functional activities; an education program delivered by occupational therapists, and hip protectors. The key finding was a reduction in falls, starting from day 45 in this subacute setting, which became larger the longer subjects took part. This delay in efficacy suggests such a program will have little impact in the acute hospital setting as most patients will be discharged prior to this time. However, it could have a substantial impact in less acute facilities including rehabilitation centres, hostels, and nursing homes. It would have been desirable for the authors to provide some assessment of which parts of the program were responsible for the improvement. This could have been assessed by some nested case-control studies within the group; for example, the exercise participants could have been compared to those in the control group recommended for but not receiving the exercise program. Overall, the study findings concur with those of other published studies of falls prevention strategies, suggesting that multifactorial interventions for at-risk fallers are effective in reducing falls incidence and severity.

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Pelvic floor muscle training during pregnancy facilitates labour

Synopsis


**Question** Does training of the pelvic floor muscles during pregnancy prolong labour?

**Design** Randomised controlled trial.

**Setting** Norwegian physiotherapy clinics.

**Patients** 301 women who had participated in a trial of pelvic floor muscle exercise to prevent urinary incontinence.

**Interventions** The women in the training group trained with a physiotherapist for one hour weekly, for 3 months between the 20th and 36th week of pregnancy. In the training group women were encouraged to perform the exercises at home twice a day. 120/148 participants received the standard training intervention. Control subjects received no intervention but were not discouraged from doing pelvic floor exercise.

**Outcomes** Hospital records were reviewed by a blinded assessor two to three years after delivery. The length of the first and second stages of labour, mode of delivery, use of episiotomy and maternal and neonatal outcomes were recorded. Prolonged second stage was defined as active pushing beyond 60 minutes. Outcome data were available for 284/301 subjects. **Results** In the training group 22/111 had a prolonged second stage of labour versus 37/113 in the control group: NNT = 8 (95% CI 4 to 73). The difference in the mean duration of the second stage of labour was not statistically different (40 min vs 45 min, \( p = 0.06 \)). Fewer women in the training group had a breech presentation 1/111 vs 9/113 and the rate of episiotomy was also less: 56/111 vs 72/113: NNT = 8 (95% CI 4 to 313). Other outcomes related to labour did not differ between the groups. **Conclusion** Pelvic floor muscle training during pregnancy facilitates, rather than obstructs, labour.

NNT and 95% CI calculated by reviewer from data in paper

Commentary

Until recently, there have been no studies investigating the preventive effects of pelvic floor muscle (PFM) training. Research has focused on treatment effect and has provided Level I evidence that PFM training is better than placebo and no treatment for treating stress urinary incontinence (Hay-Smith et al 2002). Morkved and her group have recently undertaken trials investigating whether PFM training can also prevent urinary incontinence. In 1997 Morkved and Bo showed that an intensive program of PFM postnatal training reduced the incidence of urinary incontinence and decreased severity in those with symptoms; i.e. training had both a preventive and treatment effect. They then showed in a large randomised controlled trial that an intensive PFM training program between weeks 20 and 36 of pregnancy was able to reduce the incidence of incontinence postnatally compared to the group who had routine hospital care (Morkved et al 2003). This paper presents the results of the secondary aims of that trial, to investigate the preventive role of PFM training during pregnancy on labour outcomes.

This audit of patient histories has produced evidence which could be applied immediately in a clinical context. That PFM training can facilitate labour is surely welcome news to all those involved in prenatal care. However, the intervention used in this trial was intensive exercise and not the usual prenatal care provided within the Australian health care system, which is education rather than exercise classes. Pregnancy fitness classes are held sporadically where there is a trained physiotherapist, but these are not universal. The results of this study give further evidence for physiotherapists to incorporate intensive PFM training into these pregnancy exercise classes and to offer intensive PFM training as routine care for pregnant women. For PFM training to become universal within our health care system, exercise and education rather than education alone needs to be adopted.

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References


Specific stabilising exercise improves pain and function in women with pelvic girdle pain following pregnancy

Synopsis


Question Can individualized specific stabilising exercises for the pelvic girdle reduce pain and improve function and quality-of-life after pregnancy? Design Randomised controlled trial. Setting Physical therapist’s office and patient’s home, Norway. Patients Eighty-one patients with pelvic girdle pain postpartum were randomised to a stabilising exercise group (40 patients) or a no-stabilising exercise group (41 patients). None of the patients was lost to follow-up one month after starting the program. At one year, three women did not have a physical examination. Interventions Treatment was individualised according to the patient’s particular clinical situation. Both groups received information and ergonomic advice, massage, joint manipulation/mobilisation, or electrotherapy/heat. The stabilisation exercise group additionally received a stabilisation exercise program focusing on specific contraction of the transversely oriented abdominal muscles. Patients were to perform the exercises for 18–20 weeks, three times a week at home for 30 to 60 minutes per session. Patients in both groups were seen by the physiotherapists every two weeks for 20 weeks. Outcomes The primary outcomes were pain (0 to 100 mm VAS), disability (Oswestry disability rating index), and quality of life (SF36) measured at baseline, after treatment, and at one year. Physical examination outcomes were measured only after treatment and included hip abduction and adduction strength, the Sorensen test, and the active straight leg raise test. All patients completed the baseline, post treatment, and one year follow-ups, however three women were pregnant at one year and their data were excluded. Results At baseline the two groups were similar on the outcomes. After intervention the stabilising exercise group had significantly better scores on all outcomes except the role emotional scale of the SF36. At one year all outcomes were better in the exercise group except the mental health scale of the SF36. Conclusion An individualised approach to rehabilitation of the pelvic girdle using specific stabilising exercises is effective in relieving pain and improving function, physical tests, and quality-of-life during the postpartum period. These results persist one year after delivery.

Commentary

Pelvic pain affects approximately 50% of all pregnant women. Altered motor control strategies have been identified in patients whose pain is believed to originate from the sacroiliac joint (O’Sullivan et al 2001) providing a rationale for the use of specific stabilising exercises for patients with pelvic pain after pregnancy.

A previous systematic review (Stuge et al 2003) concluded that there was not strong evidence for any physiotherapy intervention for pregnancy-related low back and pelvic pain. The lack of strong evidence emphasises even more the importance of this Stuge et al (2004a) trial. The trial examined whether the addition of specific stabilising exercises to a conventional physiotherapy program is more beneficial than a conventional physiotherapy program alone. The effects were greater for the group receiving specific stabilising exercises and these effects were maintained after one year. A subsequent paper reported that the effects were maintained at two year follow-up (Stuge et al 2004b). The long term results are particularly significant considering the recurrent and long lasting nature of pelvic pain.

Most of the recent trials examining the efficacy of specific stabilisation exercises have the group interventions designed as a treatment package. This also holds true for the Stuge et al trial so it is difficult to estimate the true effect of these exercise programs as the observed effect could be influenced by effects of co-interventions. Also, the number of sessions and duration of the program do not seem to be standardised across trials. For example, both Stuge et al (2004a) and O’Sullivan et al (1997) found that specific stabilisation exercises were effective; however, while patients in the Stuge et al trial received an average of 60 treatment sessions, O’Sullivan et al applied only 10 treatment sessions. Future trials should examine the effect of exercise dose in the treatment outcome of low back and pelvic pain patients.

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References

Unsupervised home exercise and/or self-monitoring of symptoms does not improve pain or function in patients with osteoarthritis

Synopsis


Question Does an unsupervised home exercise program and/or self-monitoring of symptoms improve pain or function in patients with knee or hip osteoarthritis? Design Cluster randomised controlled trial, where rheumatologists were randomised into four groups. Setting 867 rheumatologists in France. Patients Each rheumatologist enrolled four patients (three with knee OA, one with hip) who met clinical and radiographic American College of Rheumatology criteria for OA. Interventions The rheumatologists were assigned to four groups according to the treatment given: 1) Standardised assessment tools (ST, n = 221) that consisted of weekly recording of pain and disabling activities in a diary; 2) A home-based exercise program performed daily at least four times per week with the aid of videotape and booklet (EX, n = 213); 3) Both tools and home-based exercise (ST+EX, n = 213); 4) Usual care (n = 221). In addition, all patients received a non-steroidal anti-inflammatory drug. Outcomes Primary outcome was pain during the previous week (measured on a visual analog scale, 0–100). Secondary endpoints were Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) function subscale (0–100), and patient assessment of the quality of care (0–100). Result Overall, 2957 patients were included. 15.2% dropped out of the trial and the satisfaction questionnaires were not returned by 29.4% of patients. Only 32.6% of patients in the EX group and 28.8% in the ST+EX group met the specified criterion of adherence to recommended exercise sessions. 69% stopped exercise because they found the exercise too painful or constraining. At 24 weeks, intention to treat analysis showed a significant improvement in pain, WOMAC function subscale, and patient assessment of overall status in all four groups, but there was no difference between the groups. The improvement in pain and function in ST, EX, ST+EX and usual care groups were (mean difference from baseline (SD)) -17 (27), -20 (29), -15 (27), -19 (29); and -11 (19), -12 (19), -10 (19), -11 (20) respectively. Patients in the EX and ST+EX groups were more likely to agree that their rheumatologists had done his/her best to preserve their functional and physical activities. Conclusion A home-based program of exercise and/or a patient administered assessment tools did not improve pain and function in patients with OA at 6 months. Only 30% of the participants met the criterion for adherence to the exercise program.

Commentary

Existing clinical guidelines, both in Europe and America, suggest that various types of exercise should be included in the treatment of OA and several systematic reviews and randomised controlled trials published in recent years support these recommendations. In his introduction Ravaud claims that these recommendations are based on small studies only and that numerous questions about the various types of exercise program remain unanswered. A Cochrane Review from 2003 (based on data from 2562 patients with OA of the knee) conclude that therapeutic exercises reduce pain and improve physical function, but Ravaud is quite right that the optimal exercise type and dosage is not yet known.

The main purpose of this study was to evaluate the clinical efficacy of patient-administered assessment tools and an unsupervised home-based exercise program. The rationale for choosing an unsupervised home-based exercise program, was that supervised facility-based programs are highly resource-consuming, which may limit their application to large populations and to community settings.

Compliance with the training program is a key point in studies measuring effect of exercises and physical activity. To achieve high compliance, supervision is extremely important; patients need thorough instructions to perform the exercises in a proper way and encouragement to change their activity behaviour and keep on with the training program on a regular basis. The present study shows clearly that a booklet illustrating the exercises, and a videotape comprising a motivational portion and a 30 minute exercise program, are not sufficient to achieve adequate compliance and positive effects.

In spite of the findings of the present study, the first choice in the treatment of patients with moderate OA should be exercise. As opposed to non-steroidal anti-inflammatory drugs, which are frequently the first choice in treatment of OA and may have serious negative side effects, exercises have a lot of additional positive effects: increased muscle strength, aerobic capacity and fitness, reduced body weight, and improved quality of life.

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Reference