A tailored pelvic floor exercise program commenced immediately post-partum promotes continence

Synopsis


Question: Does a physiotherapy-assisted individually tailored pelvic floor exercise program promote urinary continence in women who have undergone stressful deliveries? Design: Randomised controlled trial. Setting: Australian tertiary teaching hospitals. Patients: Six hundred and seventy-six women who had a forceps or ventouse delivery, or a high birth weight baby (> 4000g) (consent rate 78.9%). Subjects were recruited within 48 hours of delivery and randomised into intervention (n = 348) or control groups (n = 328). Interventions: All subjects received standard written information on pelvic floor function and exercises. Whilst in hospital, the intervention group also received a physiotherapy-assisted individually tailored pelvic floor exercise program which was reviewed by the same physiotherapist eight weeks later. Adherence strategies following the health belief model were used to encourage training. Outcomes: Outcomes were assessed by telephone interview 12 weeks post-partum. Primary outcome was urinary incontinence (determined as positive response to any of five standard questions). Secondary outcomes were incontinence severity and compliance with pelvic floor exercises measured with validated scales. The effects of age, body mass, previous incontinence, perineal status, collagen status and type of delivery was tested. Results: Loss to follow-up was 6% in both intervention and control groups. Eighteen-point-four per cent of the intervention group did not attend the 8-weeks revision session. The prevalence of incontinence in the intervention group was 31%, and in the control group, 38% (difference 7.4%, 95% CI 0.2% to 14.6%). The adjusted odds ratio of incontinence for intervention compared with control was 0.65 (95% CI 0.46 to 0.91). Prior experience of incontinence, and continence status immediately post partum significantly predicted continence status at 12-weeks follow-up. Ten-point-one per cent of the intervention group had severe incontinence, compared with 17% in the control group (difference 7.0%, 95% CI 1.6% to 11.8%). Compliance with pelvic floor exercises was 84% (95% CI 80% to 88%) in the intervention group and 58% (95% CI 52% to 63%) in the control group. Conclusion: A physiotherapy-assisted individually tailored pelvic floor exercise program commenced immediately post-partum for women who have had stressful deliveries significantly promotes urinary continence three months later.

Commentary

The researchers should be congratulated on conducting a high quality trial with large numbers, and also for using adherence strategies to support pelvic floor training. However, Brubaker (2002) has commented that the effect was small (7%) despite “conscientious rehabilitation efforts” (p. 1227). It is sad that the medical profession (including physiotherapists) believe that two visits with a physiotherapist is a strong intervention. From exercise science, we know that strength training needs close follow-up and intensive contractions over time, and there is a dose-response relationship in all exercise programs. Physiotherapists need to acknowledge this and put as much effort into the content and follow-up of the intervention as to numbers and design of the study. There were no measurements of pelvic floor muscle function and strength in this study, so we do not know whether the intervention actually increased pelvic floor muscle function. The authors are not correct when they state that they are the first to report results in controlled studies in prevention of urinary incontinence after childbirth. There are two randomised controlled trials and one matched controlled study (the latter showing 50% reduction in incontinence after training) supporting the results of the present study. Chiarelli and Cockburn have shown a statistically significant, but small, effect of two visits with a physiotherapist and unsupervised home training. There is a need for further high quality trials with stronger interventions to show if this effect can be improved.

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Reference

Community physiotherapy provides a small transient benefit for stroke patients with long term mobility problems

Synopsis


Question: Does routine community physiotherapy improve mobility in patients with mobility problems one year after stroke? Design: Randomised controlled trial. Setting: Established community physiotherapy services in the United Kingdom. Patients: Three hundred and fifty-nine patients were identified from stroke registers, 182 were eligible for inclusion, 170 consented and were randomised. Criteria for inclusion included: older than 50 years; stroke at least one year previously and with persisting mobility problems (use of a mobility aid other than a walking stick; fall in previous three months; unable to manage stairs, slopes or uneven surfaces independently). Exclusion criteria included dementia and severe comorbidity. One hundred and sixty-one patients completed the 3-month follow-up, 151 the 6-month follow-up and 146 the 9-month follow-up. Interventions: Eighty-five patients were allocated to the physiotherapy group and 85 to the control group. In the physiotherapy group, patients received treatment by an established community physiotherapy service. Treatment used a problem solving approach at home or in outpatient rehabilitation centres for a maximum of 13 weeks (minimum three contacts). The controls received no treatment. Outcomes: Primary outcomes were Rivermead mobility index and gait speed over 10m. Secondary outcomes included Barthel index, Frenchay activities index and proportion of subjects who had fallen. Outcomes were assessed at 3, 6 and 9 months by a blinded assessor and analysed according to the intention-to-treat principle. Result: The Rivermead index showed an effect of treatment at three months (but not at six or nine months), however the effect was small: the median difference in improvement was 1 point (95% CI 0 to 1) on the 0-15 point scale. There was a treatment effect on gait speed at three months (but not six or nine months) of 2.6m/min (95% CI 0.3 to 4.95). There were no statistically significant or clinically meaningful between-group differences in the Barthel or Frenchay indices or falls data at any time point. Conclusion: In patients with long term mobility problems following stroke, a community physiotherapy service provides small improvements in mobility. However, these improvement are only temporary.

Commentary

The trial’s major finding is that the intervention produced small, immediate improvements in mobility one year after stroke, which were not sustained. The first point to note is that the study investigated a routine community physiotherapy service in the UK. Unfortunately, there is very little information about the intervention and it appears that the therapists could do what they liked. While this may reflect the way this service operated, it means that, even if the intervention had been found to be highly effective, it would be almost impossible to implement in clinical practice. It is important that if the results of randomised controlled trials are to drive clinical practice, the intervention is described to a degree where it is understood by the audience.

Another striking feature regarding the intervention is the small amount of it. Although the duration of the intervention was three months, the median amount of treatments per patient was 3 (IQR 2-7) with the mean duration of each treatment session being 44 min (SD 21). There have been two systematic reviews (Kwakkel et al 1999, Langhorne et al 1996) which show that patients who received more physiotherapy after stroke had lower mortality and higher function than those who received the standard amount. Perhaps it is unreasonable to expect small amounts of therapy such as delivered in the Green et al (2002) trial to have a long-term effect. There are trials showing that short intensive bursts of intervention (eg Dean et al 1997, Taub et al 1993) are effective late after stroke. An alternative solution may be to provide less frequent but ongoing maintenance programs. Either way, the challenge is to identify effective therapy for this group of chronically disabled people.

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References

Exercise-based cardiac rehabilitation is effective in reducing cardiac deaths

Synopsis


Question: What are the benefits from exercise-based cardiac rehabilitation programs compared with usual care?

Design: A systematic review of randomised controlled trials within the framework of the Cochrane Collaboration.

Setting: Both hospital-based and community-based settings.

Patients: Men and women of all ages who had myocardial infarction (MI), coronary artery bypass graft (CABG) or percutaneous transluminal coronary angioplasty (PTCA), or who had angina pectoris or coronary artery disease defined by angiography.

Interventions: The intervention had to include some form of exercise training. The specific comparisons made were a) exercise training and usual care vs usual care alone and b) exercise training in addition to psychosocial and/or educational interventions (comprehensive) vs usual care alone.

Outcomes: The primary outcomes were all-cause mortality, cardiac mortality, non-fatal MI, revascularisation (CABG or PTCA), non-fatal cardiovascular disease events and health related quality of life. Secondary outcomes included the modifiable cardiac risk factors smoking behaviour, blood pressure and blood lipid levels.

Result: A total of 32 trials were included. The reporting of methodological quality in the trials was poor. Meta-analyses for the exercise only intervention showed a 27% reduction in all cause mortality [odds ratio (OR) 0.73 (95% CI 0.54 to 0.98)], while comprehensive cardiac rehabilitation reduced all cause mortality by 13% [OR 0.87 (0.71 to 1.05)] compared with usual care. The corresponding ORs for total cardiac mortality were 0.69 (0.51 to 0.94) for exercise only and 0.74 (0.57 to 0.96) for the comprehensive cardiac rehabilitation intervention. The absolute risk reduction for a pooled effect estimate in a combined outcome of mortality, non-fatal MIs and CABG and PTCA for any rehabilitation intervention including exercises compared to usual care was 2.9% (1.3 to 4.5), resulting in a number needed to treat of 34 patients.

Sensitivity analyses by study quality showed that the pooled effect estimates were relatively robust.

Conclusion: Exercise-based cardiac rehabilitation is effective in reducing cardiac deaths. This conclusion is based on trials including predominantly younger men who had suffered myocardial infarction. It is not clear whether exercise only or a comprehensive cardiac rehabilitation intervention is more beneficial.

Commentary

The paper in hand is a systematic review on a very important topic. For many years cardiovascular diseases have been the single most common cause of death in Western society and now Eastern Europe and Asia are experiencing the same problems. Physical activity is thought to be one factor that could reduce the burden of this disease.

This meta-analysis of a total of 7,683 patients showed that exercise training alone resulted in a 27% reduction, and cardiac rehabilitation a 13% reduction, in total cardiac mortality. However, the studies fail to show any significant positive effect on other outcomes such as non-fatal myocardial infarctions, obesity, lipid profile or the need for intervention such as PTCA or CABG. Of note is the lack of effect at long term follow-up.

The review also reveals a need for better quality studies with higher power, clear blinded outcome, better randomisation and a clearer description of co-interventions such as drug therapy. The use of standardised health questionnaires is also lacking in many of the studies, reducing validity of the results. Additionally, better reporting of treatment “drop outs” and “drop ins” is required. Drop-ins are especially important because many believe that physical exercise improves survival in patients with cardiovascular disease. Accordingly, subjects in the control group may, in many cases, start to exercise. Interestingly, most studies failed to include many patients who would benefit most from rehabilitation, as elderly patients, cardiac surgery patients and heart failure patients often were excluded. There is still a bias towards including middle-aged men, and only a few studies included women.

In order to clarify the effect of physical rehabilitation in patients with cardiac-related diseases, the challenge would be to conduct a larger study without the flaws mentioned above. A study with long term follow-up to show the effect of physical activity rehabilitation in patients with cardiovascular diseases would be of utmost importance.

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Ottawa Ankle Rules are more sensitive than Dutch in detecting significant ankle fracture

**Synopsis**


**Question:** What is the diagnostic accuracy of the Ottawa Ankle Rules and two Dutch diagnostic decision rules in detecting clinically significant fracture in patients with acute ankle injury?  
**Design:** Prospective blind comparison of the test and reference standard in a consecutive series of patients drawn from a clinical population. **Setting:** Teaching hospital emergency department in The Netherlands. **Patients:** Patients presenting with acute ankle injury were invited to participate. **Description of tests and diagnostic standard:** The attending physician assessed the patient, scored the individual items of the three ankle rules using a standardised form and prescribed treatment. All patients then underwent a standard series of foot and ankle radiographs. Radiographs were read by a radiologist and trauma surgeon who were blinded to the initial assessment and treatment. **Main outcome measures:** Sensitivity, specificity and the area under the ROC curve (AUC*) were calculated to describe each rule's ability to detect significant ankle fracture. The reduction in radiographs that would result if the rule was followed, compared with a practice of routinely imaging all patients, was also calculated. **Main results:** The point estimates and 95% CI for the measures of diagnostic accuracy were: Ottawa rules sensitivity 98% (87% to 100%), specificity 26% (22% to 29%) and AUC 0.76 (0.69 to 0.84); Leiden rules sensitivity 88% (74% to 96%), specificity 57% (53% to 61%) and AUC 0.84 (0.78 to 0.90); and Utrecht rules sensitivity 59% (42% to 74%), specificity 84% (81% to 87%) and AUC 0.83 (0.76 to 0.89). The reduction in radiographs with implementation of each set of rules was Ottawa 24%, Leiden 54% and Utrecht 82%. **Conclusion:** The Ottawa Ankle Rules are the most sensitive test for detecting significant ankle fracture in patients presenting to an emergency department with an acute ankle injury. While the Utrecht rules are the least sensitive of the three tests, they result in the greatest savings in radiographs when compared with the practice of routinely imaging all ankles.

*AUC values range from 1.0, perfect detection, to 0.5, detection no better than chance.

**Commentary**

The Ottawa Ankle Rules were first published a decade ago. They constitute a useful tool to assist clinicians in deciding whether x-rays are necessary in cases of ankle injury. X-rays are recommended only when clinical indicators suggest, on the basis of evidence from very large research samples, that a clinically significant fracture of the ankle or midfoot is reasonably possible. A key question, however, is how well such guidelines generalise to settings other than the original research context. The current paper is valuable because it rigorously examines the diagnostic accuracy of this tool in a new setting and in relatively inexperienced hands (junior doctors). Furthermore, it compares this tool with two other local tools, similarly used to minimise unnecessary radiography.

To appreciate the value of the Ottawa rules readers need to be familiar with some terms used in diagnosis studies. The sensitivity of a diagnostic test is the proportion of tested cases with the target disorder that are identified by the test. The test specificity is the proportion of tested cases without the disorder that have the disorder excluded by the test. The AUC reflects the combination of both attributes, providing an overall indication of test accuracy (Sackett et al 1991). A perfect test would exhibit 100% sensitivity and specificity, giving an AUC of 1.0. Such a test would be a rare find indeed!

The results of this study indicate that the Ottawa Ankle Rules, even in relatively inexperienced hands, identify 98% of clinically significant ankle or midfoot fractures in cases of ankle injury presenting to a hospital emergency department. Furthermore, use of the rules will lead to 26% of non-fracture cases being excluded from radiography. The other, local rules for ankle radiography (which we could compare with other clinical methods we might currently use to identify fracture cases) would miss 12% and 41%, respectively, of fractures. This is clearly unacceptable, despite associated potential cost-savings.

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**Reference**

A multidisciplinary evaluation and management unit reduces mortality in sick, frail older patients

Synopsis


**Question:** How effective is treatment provided in a hospital-based geriatric evaluation and management unit in reducing mortality in acutely sick, frail older patients?

**Design:** Randomised controlled trial. **Setting:** Norwegian university hospital. **Patients:** Two hundred and fifty-four acutely ill, frail patients aged over 75 years were recruited from general medical wards over a 12-month period. Reasons for admission included chronic disability, confusion, depression, dizziness and falling, impaired mobility, urinary incontinence, malnutrition, polypharmacy, vision or hearing impairment, social problems or prolonged bed rest. Stroke patients, nursing home patients and fully independent patients were not included. Patients were randomised into the geriatric unit (n = 127) or a general medical ward (n = 127). **Interventions:** The geriatric unit patients underwent comprehensive multidisciplinary assessments, regular multidisciplinary meetings for goal setting and discharge planning, early mobilisation, participation in activities of daily living and communal meals. Physiotherapists and occupational therapists were involved with all geriatric unit patients. Control patients were treated according to individual medical ward routines. Physiotherapy and occupational therapy was provided on medical referral. **Outcomes:** Duration of hospital stay and mortality at three, six and 12 months. Modifier variables were age, gender, heart disease, previous lengths of stay in hospital and number of conditions. **Results:** The geriatric unit patients stayed in hospital twice as long as the medical ward patients (median 15 days (IQR 11 to 26 days) compared with median 7 days (IQR 3 to 14 days)). Mortality was significantly reduced in the geriatric unit throughout 12 months (12% vs 27% at three months (p < 0.05), 16% vs 29% controls at six months (p < 0.05), 28% vs 34% at 12 months (p < 0.05)). Greatest reduction in mortality occurred in the first three months (hazard ratio 0.39, 95% CI 0.21 to 0.72). No significant confounders were identified. Survival curves came together at 18 months and after two years, approximately 50% of patient in both groups were deceased. **Conclusion:** Treatment of acutely ill, frail older people in a multidisciplinary geriatric evaluation and management unit incurs twice as many hospital days as medical ward management, but significantly reduces mortality over the following 12 months.

Commentary

This study provides some evidence that acutely sick, frail older patients managed in a geriatric unit have better outcomes than those treated with “usual” care. So what is different about these two inpatient management styles? The geriatric unit used a combination of acute medical treatment that addressed all relevant disorders and disability as well as acute rehabilitation involving a multidisciplinary team. The multidisciplinary team (geriatrician, physiotherapist, occupational therapist and nurse) met twice weekly to report, set goals, discuss problems and plan discharge. The traditional medical ward management involved medical treatment from appropriate specialists with physiotherapy and occupational therapy provided by referral. However, it is difficult to ascertain from this study which aspects of the geriatric unit management produced the outcomes.

It is interesting that by 18 months, the mortality rate was similar in the geriatric and control groups. There is a need to establish that the improved survival rate observed in the geriatric unit group in the early stages was accompanied by a relative increase in quality of life and functional independence. Unfortunately, this paper focused only on the mortality data and did not report health related quality of life and functional capacity measures. This data would have been of great interest to physiotherapists and hopefully will be published at a later date. Parallels in this paper may be seen with research that has clearly demonstrated that stroke units provide a better outcome than management on a general medical ward at the level of survival, discharge destination and dependency (Stroke Unit Trialists’ Collaboration 2000). The benefits of stroke units have been attributed to a combination of quality acute management, co-ordinated input of a multidisciplinary team and therapy programs.

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Reference