Clinical shorts

Rehabilitation or surgery for low back pain: Although surgical intervention with disc prosthesis for chronic low back pain caused by degenerative disc disease resulted in significantly greater improvement in a disability score, the authors of this randomized trial concluded that it is reasonable to consider a rehabilitation program before surgery. The 173 participants in this study had a history of at least one year of low back pain, a minimum of six months of unsuccessful physiotherapy or chiropractic treatment, disability as defined by a score of more than 30 on the Oswestry disability index and degenerative changes on one or two lower spine levels. They were randomized to surgery with disc prosthesis or outpatient rehabilitation (about 60 hours over three to five weeks) and were followed for two years. There were significant differences in favour of surgery for several secondary outcomes, such as satisfaction with outcome at two years (63% for surgery, 39% for rehabilitation) The mean difference in Oswestry disability index (the main outcome measure) of –8.4 (95% confidence interval [CI] –13.2 to –3.6) in favour of surgery was less than the difference of 10 points that the study was powered to detect and may not be clinically important. The authors noted that the surgical procedure was associated with potentially serious complications and that the rehabilitation group improved considerably without these added risks. The crossover rate to surgery was 6% and the drop-out rate was 20%. See *BMJ* 2011;342:d2786 doi:10.1136/bmj.d2786.

Rehabilitation after stroke using a treadmill with body-weight support: For patients who have had a stroke, locomotor training, including use of body-weight support in stepping on a treadmill, is not superior to progressive exercise at home managed by a physical therapist. This is the conclusion of a randomized trial involving 408 participants with residual leg weakness from stroke that had occurred within two months of the start of the study. Participants were randomly assigned to one of three groups: progressive home exercise with supervision by a physical therapist two months after stroke, or locomotor training early (two months after stroke) or late (six months after stroke). At one year, 52% of all participants had increased functional walking ability, and there were no significant differences in improvement in those who had home exercise or early or late locomotor training. Participants who started rehabilitation at two months had early gains in walking and functional outcomes that were sustained at one year. Dizziness and fainting were more common, however, in the groups receiving locomotor training, with an increase in multiple falls in those who started locomotor training early. The authors point out that supervised home exercise had fewer risks and may be more feasible. See *N Engl J Med* 2011;364:2026-36.

Effects of a very low-energy diet on obstructive sleep apnea: Initial improvements in obstructive sleep apnea after weight loss from a very low-energy diet can be sustained at one year in obese men. In a prospective observational study from Sweden, 63 men with a body mass index of 30–40 and moderate to severe obstructive sleep apnea (treated with continuous positive airway pressure) were started on a very low-energy diet program. The program consisted of seven weeks of a liquid diet with 2.3 mJ/d (around 475 kcal), two weeks of gradual introduction of normal food (to reach 6.3 mJ/d or 1500 kcal), followed by a weight loss maintenance program for a total of one year. At baseline, the mean apnea–hypopnea index was 36 events/h. After completion of the very low energy diet period, this index had improved by –21 events/h (95% CI –17 to –25), with sustained improvement at one year (–17 events/h, 95% CI –13 to –21), compared with baseline. Mean weight loss over the year was 12 kg. Those who lost the most weight or had severe obstructive apnea at baseline benefited the most. At one year, almost half no longer required continuous positive airway pressure, and 10% had complete remission of obstructive sleep apnea. About 70% (44/63) completed the full program. The study was limited by lack of a control group. See *BMJ* 2011;342:d3017 doi:10.1136/bmj.d3017.

Preventing malfunction of dialysis catheter with recombinant tissue plasminogen activator: Compared with heparin used three times per week as a locking solution for central venous catheters, recombinant tissue plasminogen activator used once weekly (with heparin administered the other two times) significantly reduced the incidence of catheter malfunction and bacteremia in patients undergoing hemodialysis. An industry-sponsored randomized trial of 225 patients with newly inserted catheters who were undergoing long-term hemodialysis showed that a catheter malfunction occurred in 34.8% (40/115) of those assigned to heparin compared with 20.0% (22/110) of those assigned to recombinant tissue plasminogen activator plus heparin (hazard ratio [HR] with heparin 1.91, 95% CI 1.13 to 3.22, $p = 0.02$). Catheter-related bacteremia occurred in 13.0% of patients assigned to heparin, in contrast to 4.5% of those in the recombinant tissue plasminogen activator group (HR with heparin 3.30, 95% CI 1.18 to 9.22, $p = 0.02$). Risk of bleeding and other adverse events were similar between both groups. Although recombinant tissue plasminogen activator is considerably more expensive than heparin, the authors point out that lower rates of bacteremia and catheter malfunction reduce the incremental costs of its use over heparin. See *N Engl J Med* 2011; 364:303-12.

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