Spine

X-ref ***For other Roundups in this issue that cross-reference with Spine see:*** *Hip Roundup 5; Research Roundup 7.*

Naproxen just the job for back pain X-ref

There is little that is encouraging about isolated back pain. Surgical options are unreliable, and the volume of patients presenting with acute lumbar back pain is high, creating a large health economic burden. To top it all off, analgesics are variably successful and it isn't unheard of for patients to suffer side effects or addiction to strong opioid analgesics they have been exposed to as part of their treatment for acute low back pain. Researchers in **New York (USA)** have reported their results of a three-armed analgesic trial of naproxen with an augment of either cyclobenzaprine, oxycodone/paracetamol or placebo for episodes of acute low back pain.[1] They assessed the outcomes of 323 patients using the Roland-Morris Disability Questionnaire at one week and three months following the emergency department visit. All patients presented to the ED with non-traumatic lumbar back pain with no radicular symptoms. Intervention was for ten days of analgesia combined with an education session prior to discharge. The headline results of this study are that naproxen alone when combined with an education session is as efficacious as stronger analgesics at a week of follow-up, with similar improvements of around 10 points in all groups and no significant differences between groups. Given the obvious drawbacks and side-effect profiles of the stronger medications, it seems to us here at *360* that 'keeping it simple, stupid' is the best plan in this case.

Physio may be helpful in low back pain X-ref

In the second large important RCT involving interventions for lower back pain, researchers in **Salt Lake City (USA)** set out to establish if physiotherapy is a useful intervention in lumbar back pain.[2] In a simpler study design than the previous study, this trial team designed a two-armed randomised controlled trial, with patients randomised to either physiotherapy or standard care. The patient groups were slightly different to the previous study, consisting of patients who had suffered low back pain for six months, but similarly they had no radicular symptoms. The control group received their standard care which was simply early education, while the intervention group received physiotherapy weekly for the first four weeks. Outcomes were assessed at four weeks, three months and a year. Statistically significant differences were found at four weeks (3.5 points) and at three months (3.2 points), but not at one year (2 points), all in favour of physiotherapy. However, despite the statistically significant difference, this did not reach the minimally clinically important change, making the value of the intervention questionable. Given the sustained and significant difference between the two groups, we wonder if a more comprehensive course of physiotherapy would have achieved a clinically important difference between them.

Reducing intra-ocular pressure in prone surgery X-ref

A devastating and often unforeseen risk of prone surgery is the onset of post-operative blindness. Although there isn't universal agreement as to causation, here at *360* we tend to agree with the prevailing opinion that blindness is probably due to increased intra-ocular pressure from positioning. There are few well-conducted studies investigating measures to reduce complications, and even fewer trials comparing peri-operative care regimes. Clinical trialists in **Morgantown (USA)** have set out to establish what, if any, effect the head position during prone spinal surgery has on intra-ocular pressure readings.[3] The study team randomised 52 patients, all undergoing lumbar spine surgery, to one of two head positions: the intervention group were positioned with their head in 10 degrees of neck extension such that the face was no longer parallel to the operating table, while the control group were managed with the usual head neutral position. All the patients were undergoing lumbar spine fusion and, as would be expected, those with pre-existing eye disease, tumour, neck disease or ocular surgery were excluded. Outcomes were assessed primarily through use of the mean ΔIOP, with the investigators also measuring blood pressures and PCO_2 values throughout the surgery. Remarkably, the investigators established there was a much lower pressure associated with the head in extension, with pressure readings 4.5 mmHg lower in the intervention group. As would be anticipated with a small scale study like this, there were no cases of visual loss in either group. With a capable study design and little in the way to criticise in the reporting or outcomes of the trial, this paper can be said to prove that extension of the neck will reduce the incidence of intra-operative ocular hypertension. It is not proven, but seems likely that this will translate into lower rates of blindness.

Standing MRI scans standard practice? X-ref

These days, evaluation of the degenerate spine pivots around diagnostic imaging. Although neurological exam and history-taking are still central to functional examination, in the absence of an abnormal scan it would be a brave man to undertake spinal surgery. The difficulty, however, is that spinal MRI scans are taken lying down, and patients usually experience symptoms while standing. There has been a general thought for some years that a more functional 'standing' MRI scan might be more diagnostic, but due to little evidence supporting the practice, and in the face of increased costs associated with new standing MRI scanners, the concept has quietly been left largely unexplored. However, a study team in **St Paul (USA)** set out to examine the potential role of adding standing radiographs to supine MRI scanning.[4] Their standard practice was to undertake MRI scans, and standing and flexion/extension views in all new patients presenting with degenerative lumbar spine conditions. Their series of 416 patients included 109 patients with degenerative spondylolisthesis, of whom 31 (28%) were missed on the MRI scan alone. The addition of flexion/extension views added little in terms of diagnostic accuracy, and the authors of this useful study conclude that the inclusion of a standing lateral radiograph improves the diagnostic accuracy of supine MRI scanning for sagittal plane malalignments without the added expense and complications of a standing MRI scan.

High-dose steroids in corticosteroid administration X-ref

High-dose corticosteroids in spinal cord injuries are a controversial topic, with differing protocols around the world. While some units still recommend high-dose steroids following trauma to the spinal cord, the evidence is far from convincing. There is little contemporary evidence to support the practice although there are some randomised controlled trials supporting clinical recovery at the cost of higher complication rates. Contemporary thinking in many spinal injury centres is that steroids may do more harm than good. Unsurprisingly, there is even less evidence in children, with high complication rates outweighing any potential advantage in many institutions. Researchers in **Dallas (USA)** report their own experience of complications in children

with a spinal cord injury given high-dose corticosteroids compared with a cohort that received no corticosteroids.[5] The report concerns the outcomes of 34 patients, all with paediatric spinal cord injuries, of whom 23 received high-dose steroids and 11 did not. While this study population is woefully small, the rarity of the injury makes it worthy of note. In this study there was a significantly higher rate of respiratory tract infection in the comparator group, but essentially all outcomes were the same when complication rates were taken into account. This paper raises the question of steroids, particularly in the paediatric spinal population. The authors did not find higher rates of pulmonary, GI or surgical wound complications in the steroid-treated group. In adults, methylprednisolone has been found to be a neuroprotective agent in prospective, randomised controlled trials. The current study may be a springboard for similar trials in the paediatric population to determine the efficacy of their use.

Spinal surgery in the presence of Parkinson's disease

Patients with Parkinson's disease tend to develop complications after orthopaedic surgery, and suffer both in terms of compliance with rehabilitation and compromised long-term outcomes. There is, however, little in the way of evidence to inform the patient and surgeon as to the ramifications of spinal surgery in patients with Parkinson's disease. This study from **Jerusalem (Israel)**, although reporting a small number of patients, represents some of the only evidence in this patient group.[6] This retrospective study details the outcomes of 96 serial patients, all with a diagnosis of Parkinson's disease and all undergoing spinal surgery. Outcomes were reported at just over 30 months and were stratified by disease severity. Overall there were 19 complications reported, and outcomes clinically were excellent (VAS score improvement from 7.4 to 1.8 cm). The risk of further surgery was increased in patients with a Parkinson's disease severity of 3+ or concomitant diabetes, osteoporosis or those patients requiring a combined anterior and posterior approach. Based on the results described here it is possible to conclude that the overall outcome of spine surgery in patients with mild to moderate Parkinson's disease is good, and the study team have demonstrated that Parkinson's disease itself is not a risk factor for orthopaedic surgery, but the grade of Parkinson's disease is a risk.

Individualised physiotherapy *versus* protocol-driven lower back rehabilitation

The management of lower back pain continues to vex many orthopaedic and spinal specialists. While we know that the majority of patients make a consistent recovery over a period of months to years, there are some who are left with permanent disability. Management of expectations and directing rehabilitation is often the mainstay of low back pain treatment and in many units the physiotherapist has a central role to play in this process. Surgeons in **Victoria (Australia)** set out to evaluate two potential rehabilitation protocols in a randomised controlled trial.[7] Three hundred patients managed at 16 primary care physiotherapy centres were randomised to either generic advice (n = 144) or two sessions of tailored physiotherapy (n = 156). The study team established the outcomes using the Oswestry Disability Index and rating scales for back and leg pain. Interestingly, this study sides with individualisation of therapies, with those patients receiving the face-to-face tailored physiotherapy sessions more likely to have a clinically important change in the Oswestry Disability Index at both ten and 52 weeks, a result that was mirrored in significant improvements in the back and leg scales. For now at least (in line with many clinicians' inherent biases), spinal rehabilitation on a face-to-face basis has evidence to support its efficacy out to a year of follow-up.

A multidisciplinary approach to military back pain

Sticking with the theme of rehabilitation and mechanical back pain, a military study group based in **Portsmouth (USA)** report their outcomes following the introduction of a 'Spine Team' multidisciplinary approach to management of low back pain when compared with the previous, more disparate approach.[8] The study team present the results of their introduction of a comprehensive team of doctors, physiotherapists and psychologist to their centre using a historical control group. The team aimed to evaluate if the extra expense and difficulty associated with implementing a multidisciplinary approach had the desired impact of reducing attrition from active service and long-term disability in a diagnosis that accounts for a significant proportion of early losses from the US Navy. The study revolves around a pre- and post-intervention comparative series from two large naval centres (Portsmouth and San Diego). Over a two-year period, 667 individuals presented to their medical officers with work-related low back pain. At one site they were managed with the 'Spine Team' approach, and at the other site with the traditional approach. Although there was an overall decrease in light duty assignments due to back problems at both centres between 2007 and 2009, the decrease was significantly larger at the intervention site (a fall from 8.5 to 5.1/100 *versus* 16.0 to 14.1/100). In addition, for each year of the study, the intervention site had a lower risk of disability. Despite these improvements in disability indices and lower rates of light duties assignments, the 'Spine Team' implementation did not have a significant effect on the attrition rates at the centre itself. Although this is a study over a reasonable time period and the methodology is aided by the inclusion of a second centre as a control cohort both before and after the intervention, it is limited in the incidence of medical discharge due to mechanical back pain. The authors would do well to continue their study and expand it over a further few years, as it is likely that they are underpowered to detect a difference in medical discharge rates.

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