ROUNDUP360

Spine

Steroids may be useful in avoiding dysphagia in anterior cervical discectomy and fusion

Cervical disc prolapse is usually addressed through an anterior approach, however, no matter how carefully this is performed there is incidence of post-operative dysphagia. There are some reports in the literature already describing the use of dexamethasone to reduce the incidence of dysphagia post-operatively. Steroid use in an operation aiming to fuse a joint, however, does carry the risk of reduced fusion rates. Clinical trialists in **Albany (USA)** have set about unpicking this potentially confusing balance of risks and benefits in a randomised, controlled trial. Their study includes 112 patients operated over a four-year period, all undergoing an anterior cervical discectomy and fusion (ACDF). The study team hypothesised that steroids may reduce rates of aberrant dysphagia, but at a risk of compromising fusion rates. Their study randomised patients to either post-operative dexamethasone or standard treatment. Outcome assessment included functional scores (Japanese Orthopaedic Association myelopathy score, neck disability index), quality of life measurement (SF-12) and the functional outcome swallowing scale score. In addition, radiographic data were collected to assess fusion rates. The study was followed up to two years post-operatively with regular interval follow-ups along the way. The severity of post-operative dysphagia and length of stay were significantly better in the steroid group *versus* the control group. However, this was achieved at a trade-off in fusion velocity. Although the fusion rates were not significantly different at 12 months, there was a significantly lower fusion rate at six months in the steroid group.[1] This is an area that is definitely worth more investigation. If the fusion rate truly is unaffected in the longer term, then the short-term benefit of steroids in reducing length of stay and swallowing symptoms may be worth the trade-off.

Perhaps X-Stop ought to stop?

Despite a slightly chequered evidence base, interspinous process devices such as 'X-Stop' continue to be in widespread clinical use across the globe. The option of a small intervention to open the bony nerve root foramen either with or without a decompression is an elegant and attractive one. Difficulties, however, have ensued with secondary erosion through the spinous processes, ongoing pain and difficulty in revision of the device. What is missing is high-quality prospective randomised data that support or refute the use of the X-Stop device. The Norwegians have again pulled out all the stops and report a randomised controlled trial originating in **Lillehammer (Norway)** comparing the X-Stop device with minimally invasive decompression in patients with symptomatic lumbar spinal stenosis. The research team recruited 96 patients presenting with classic symptoms of spinal claudication and proven single- or two-level stenosis. The patients were randomised to either treatment with the X-Stop device or minimally invasive decompression. Outcomes were assessed using the EQ-5D and in health economic terms. Secondary outcome measures of complications and outcomes were reported to two years. The study was stopped after an interim analysis at 50% recruitment as the X-Stop group had a significantly higher re-operation rate at 33% and it was deemed unethical to continue. As perhaps would be expected, in addition to the higher re-operation rate, the cost-effectiveness analysis does not look good. Driven by the high cost of the implant and the one third re-operation rate, the likelihood of X-Stop being a cost-effective intervention was just 50%.[2] We hope that this is the beginning of the end for implants of this type. So long as the re-operation and complication rates stay this high, no matter how elegant the concept is, interspinous process devices should remain just that: an elegant concept.

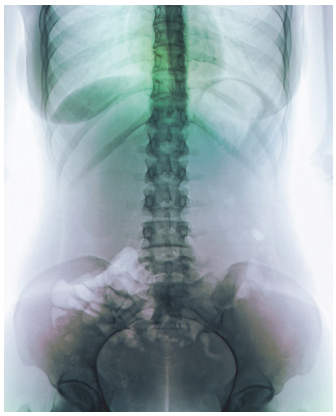
Is cervical plexus block in ACDF the gateway to day case spinal surgery?

The whole of the Western healthcare juggernaut is moving inexorably from a quality agenda to a productivity (or in some cases, value) agenda. Shaving a day off surgical stay here, reducing a re-admission there and cutting the odd implant cost, the healthcare bean counters assure us it will save the West from its healthcare excesses. While in many cases reducing costs is associated with increased 'value' rather than increased 'quality', there are some notable differences to this agenda. The use of accelerated discharge pathways and increased use of day case surgery is arguably a great step forward in quality while reducing costs. Spinal surgery is somewhat lagging behind other surgical specialties in taking advantage of the benefits offered by accelerated discharge programmes. This is likely due to the difficulties in providing adequate regional analgesia which have been shown to be a key component in almost every accelerated discharge programme. Researchers in **Toronto (Canada)** have, however, set up a study investigating the potential utility of the cervical plexus block in facilitating shortened length of stay in patients undergoing anterior cervical discectomy and fusion (ACDF). The authors of this study enrolled 46 patients undergoing single or two-level ACDF into their randomised placebo-controlled, double-blinded study. The study team assessed recovery at 24 hours following surgery, using a specific 40-item Quality of Recovery (QoR) score. In addition, opioid consumption and discharge timings were noted.[3] There was a significantly higher QoR score in the block group *versus* the control group at 24 hours, although there were no differences in rates of opioid consumption. A higher proportion of patients were discharged within 24 hours, but this difference was not significant

(15 vs 12). Analgesia is only one part of a comprehensive accelerated discharge programme, but it is heartening to see better QoR scores in the block group. This suggests to us here at *360* that, if combined with other proven interventions such as 'prehab' and improved expectation setting and therapy provision, it is realistic to expect to see similar gains (at least in cervical surgery) for patients following an accelerated discharge care pathway.

Epidural past its heyday?

Treatment of lumbar radicular pain that is not potentially amenable to surgical decompression (or indeed in those that are pre-surgical) has revolved around multimodal therapies, for which there is an excellent chance of overall treatment success when a combination of physiotherapy and pain management is involved. What the best method of pain management might be isn't necessarily completely clear from the literature. A study team from **Baltimore (USA)** have undertaken an important study to assess the relative benefits of lumbar epidural steroid *versus* gabapentin in patients presenting with lumbosacral radicular pain. Over a three-year period, 145 patients were recruited and randomised to the study, all with severe leg pain with either a herniated disc or spinal stenosis. In a well-designed study, patients received either sham epidural and gabapentin, or steroid epidural and placebo tablets. Outcomes were assessed using a VAS score for leg pain at both one and three months after injection. In short, there were no differences between patients who received either treatment at any time point. The mean change from baseline was not statistically significantly different between the two groups, -2.2 for epidural *versus* -1.7 for the gabapentin group in the first month. Looking at some of the secondary outcome measures the authors report that there was a significant difference in likelihood of a 'patient-reported successful outcome' in the



epidural group (66% vs 46%), with five as the number needed to treat. There were, however, no differences in outcome measures at three months between the two groups.[4] The authors themselves succinctly summarise their study: "Although epidural steroid injection might provide greater benefit than gabapentin for some outcome measures, the differences are modest and are transient for most people".

Steroids in lumbar back pain

Another key paper in the treatment of spinal pain has been reported from a trial group in **Oakland (USA)**, this time testing the hypothesis that oral steroids are effective for low back pain and radiculopathy. While steroids are commonly prescribed for these patients and there may be some clinical benefits, their use is not without potential complications. The study team set out to establish the potential benefits for patients with acute radiculopathy secondary to an acutely herniated disc. Their double-blinded, randomised controlled trial recruited 269 patients, all with an MRI-confirmed disc herniation with radicular pain. Patients were then randomised to either oral steroids or placebo. Outcomes were assessed using the Oswestry Disability Index (ODI) at three weeks following intervention. Secondary reported outcome measures included complications, subsequent spinal surgery and SF-36 scores assessed at one year.[5] The results are, however, slightly confusing. In terms of functional outcomes, there was a statistically significant (6.4 point at three weeks, and 7.4 point at 52 weeks) advantage in favour of the steroid group. Patients, however, did not see any improvement in pain scores. While the rates of surgical intervention at 52 weeks were no different between the two groups, there was a significantly higher risk of adverse events in the steroid group within the first three weeks of intervention (49.2% vs 23.9%). Although the authors of this study have concluded that "a short course of oral steroids, compared with placebo, resulted in modestly improved function", we would do well to remember the adverse events associated with this treatment approach (1:2). In view of this, here at *360* we won't be dashing out to treat our own patients with a course of oral steroids.

Lumbar disc replacement improving

x-ref Research

It never ceases to amaze us here at *360* how many different designs of joint replacement there are that really don't work. There has been little interest in recent years in lumbar spine arthroplasty, perhaps for the reason that, in general, it hasn't worked. Not put off by previous reports of early failure wear/debris-related problems and failure to prove improved outcome scores, and arguing that there is the potential to maintain mobility and prevent adjacent segment disease, there has been ongoing development of the implants with the aim of reducing the wear debris burden and make spinal arthroplasty a more viable option.[6] Despite these developments, there are no reports of wear debris generation in the newer inplants. Without solving that problem, it will be difficult to convince a naturally sceptical surgical community. Biomechanical researchers at the Implant Research Centre in **Philadelphia (USA)** have set out to evaluate the wear characteristics of these patients. There are few research studies reporting this outcome and even fewer in ex vivo tissues. The majority of fixed-bearing (n = 5/7) and single (n = 1/4) mobile bearing prostheses had a high level of wear debris generation (4 particles / mm2). The study team did not feel that the numbers or morphology of wear particles were significantly different between types of prostheses. However, in comparison with historically reported samples, the differences were striking. The research team reports a 99% lower number of abraded particulate debris when compared with their own historic samples. Although early data of small numbers based on ex vivo particulate wear debris analysis, we are quietly encouraged by the work of the tribology teams behind the latest generation of lumbar disc replacements. Perhaps this will develop into a more useful technology as time goes on.

Post-discectomy arthritis

Discectomy is a successful and commonly performed operation aimed at removing sequestrated nucleus pulposus from the spinal canal, and the remaining diseased nuclear disc material from the diseased segment. Conventionally, the disc is neither replaced nor arthrodesed and, as such, there is the risk of secondary prolapse or degenerate change at the diseased segment. The latter is particularly poorly understood, with few studies quantifying the incidence or sequelae of secondary disc disease. Researchers in **Nashville (USA)** undertook both an extensive literature review and then a prospective longitudinal study with the aim of understanding the frequency of secondary recurrent back pain following discectomy. The study team were particularly careful to focus on patient-centred characterisation, which their literature review suggested is an area lacking in knowledge. The literature review part of this study reviewed the results of 90 studies with aggregate reporting of the results of 21 180 patients. The systematic

study results demonstrated a huge discrepancy in reported back pain (3% - 34%) and recurrent herniation rates (0% - 23%). These results were supplemented with a prospective study of 103 patients assessed with a reported follow-up of one year. With a more carefully put together assessment focusing on patient-centred outcomes, the research team identified an incidence of worsening low back pain of 22% at a year.[7] There is much published on the topic of outcomes following discectomy, but little concerning secondary degenerative change. We were delighted here at *360* to see these authors reporting the results of a systematic review, hypothesis generation and execution of a study to address the gaps in the literature.

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