ROUNDUP360

Spine

Nothing works for back pain

Back pain is massively common and dominates so much of our lives both as clinicians and, Heaven forbid, patients. So what is the best medication available for it? Researchers from **Sydney (Australia)** have undertaken a large systematic review and meta-analysis to investigate the matter, finding 23 published reports that met their inclusion criteria. Their results are fascinating. The authors found that the evidence to judge the efficacy of non-steroidals, corticosteroids, antidepressants, anticonvulsants, muscle relaxants, and opioids ranged from moderate to low quality. Most of the pooled estimates did not favour active treatment over placebo. The pooled results of two trials of corticosteroids and a single trial of the anticonvulsant gabapentin for chronic sciatica, showed some benefits but only in the short term. Meanwhile, the median rate of adverse events was 17% for the active drugs and 11% for placebo. Trial limitations included failure to use validated outcome measures, lack of long-term follow-up, and small sample sizes.[1] So basically nothing works. These findings worry us at *360*. Not only are there no clear guidelines for the medical treatment of chronic sciatica, but how can one develop an adverse reaction to a placebo?

Spinal fusion for tuberculosis – keep it simple

Tuberculosis of the spine is, in some parts of the world, extremely common. It can represent a strong challenge to the spinal surgeon. There are certain centres, however, that have in-depth experience of the condition, as shown by a paper from **Assiut (Egypt)**. Here, surgeons have reported their experience in treating dorsolumbar tuberculosis by one-stage posterior circumferential fusion and have compared this group with a historical one treated by anterior debridement followed by posterolateral fusion and stabilisation. During a five-year period, 32 patients with active spinal tuberculosis were treated by one-stage posterior circumferential fusion and prospectively followed for a minimum of two years. Pain severity was measured using a Visual Analogue Scale and neurological assessment was performed using the Frankel scale. Readers will recall this scale, which grades function from A (complete paralysis) to E (normal function). The operative data, clinical, radiological, and functional outcomes were also compared with a similar group of 25 patients who had been treated with anterior debridement and fusion, followed up to 14 days later by posterior stabilisation and posterolateral fusion. As expected, the mean operative time and length of hospital stay were significantly longer in the two-stage group. In addition, the mean blood loss was larger as was the incidence of complications. At final follow-up, all patients in both groups with pre-operative neurological deficits showed at least one Frankel grade of neurological improvement and all showed a significant improvement in their back pain score. The mean kyphotic angle had also improved, all achieved solid fusion and 43/57 (75.4%) had returned to their pre-disease activity level or work.[2] Once again, *360* notes, the simpler, one-stage procedure appears to have an advantage; fewer complications, a shorter hospital stay, with less operative time and blood loss. Do we really need to say more?

Anatomical course of the recurrent laryngeal nerve

For those sufficiently skilled to operate on the neck and cervical spine, certainly from the front, a common complication is a palsy of the recurrent laryngeal nerve. An understanding of the anatomy is clearly critical to staying out of trouble, so a paper from **Salt Lake City (USA)** will, we suspect, be very helpful. Here, surgeons dissected bilaterally 11 adult cadavers to expose the path of the recurrent laryngeal nerve. They found that the right recurrent laryngeal nerve branched from the vagus at the level of T1/T2, or inferior to that, in all specimens. After looping around the subclavian artery, the right recurrent laryngeal nerve then became invested in the tracheoesophageal fascia at least 0.5 cm inferior to C7/T1. It then passed superiorly, slightly anterior to the tracheoesophageal groove, before coursing between the trachea and the thyroid. In 82% of right-sided dissections, the nerve entered the larynx at or inferior to C6/C7. Meanwhile, the left recurrent laryngeal nerve, after looping around the aortic arch, became invested in the tracheoesophageal fascia inferior to the T2 level in 100% of cadavers. It travelled slightly anterior to the tracheoesophageal groove and within the tracheoesophageal fascia before coursing between the trachea and thyroid. In all the left-sided dissections, the left recurrent laryngeal nerve entered the larynx at or inferior to C6/C7.[3] At *360*, we find the authors' conclusions both interesting and valuable. They report that superior to C7/T1, both recurrent laryngeal nerves had similar anatomical courses and received similar protection from the surrounding soft-tissue structures. From an anatomical perspective, the authors did not identify a side-to-side difference superior to this level that could place either nerve at greater risk of injury. Thank you Salt Lake City!

Groin pain with normal imaging – don't forget the back

As the hip surgeons of the world proceed, according to some, to de-impinge most of the planet's population, a paper from **Chiba (Japan)** is worth keeping in mind. Boasting 20 different authors, the paper reminds us that the genitofemoral and ilioinguinal nerves, which are terminal branches of the L1 and L2 spinal nerves, innervate the groin area. Groin pain, therefore, is considered to be referred pain, distinct from the nerve root pain that is such a feature of problematic intervertebral discs.

Indeed, patients who undergo percutaneous disc surgery under local anaesthetic sometimes report groin pain when a probe perforates the lateral side of the disc. What is more, patients with degenerate lower lumbar discs (L4/L5, L5/S1) occasionally report groin pain. Clearly it is important to differentiate hip pain from back pain, so this prospective study looked at 212 patients who had groin pain but without low back pain. The authors selected five patients with isolated groin pain for investigation. The patients suffered from groin pain and showed disc degeneration at one level only (L4/L5 or L5/S1) on MRI. They did not show any hip joint abnormality on radiographs or MRI. To prove that their groin pain originated from degenerate intervertebral discs, the researchers assessed any changes in groin pain after infiltration of lidocaine into the hip joints and examined pain provocation on discography, pain relief by anaesthetic discoblock, and finally anterior lumbar interbody fusion surgery. The results were fascinating. All patients were negative for hip joint block, positive for pain provocation on discography, and positive for pain relief by anaesthetic discoblock. Furthermore, bony union was achieved one year after anterior interbody fusion surgery in all the patients, and their groin pain had significantly improved at one year after surgery as well.[4] *360* feels that if there was ever a wake-up call, then this is it. When that next patient walks into your surgery with a painful groin, it is essential to remember the back.

Surgery or no surgery for the herniated intervertebral disc?

■ From **Lebanon (USA)** comes a thought-provoking study on which patients should receive surgery for lumbar disc herniation and which ones should not. This was a combined prospective randomised controlled trial and observational cohort study aiming to look at the difference between surgical and non-operative outcomes for intervertebral disc herniation. Patients with a herniated intervertebral disc underwent either discectomy (n = 788) or non-operative care (n = 404) and were analysed according to the treatment they received. There were 37 baseline variables used to define subgroups for calculating the time-weighted mean treatment effect for the Oswestry Disability Index across four years. Variables with significant subgroup-by-treatment interactions were simultaneously entered into a multivariate model in order to select independent predictors of the treatment effect. The authors found that all analysed subgroups improved more with surgery than with non-operative treatment. Specifically, being married, the absence of joint problems, a worsening symptom trend at baseline, high school education or less, older age, no worker's compensation, longer duration of symptoms, and an SF-36 mental component score < 35, were associated with greater treatment effects.[5] What excellent news, we think at *360*. Time to go home and remind our spouses and partners that it is important they continue to nag. Apparently it is good for us.

It's true – obesity is bad for you

■ Is it an old wives' tale that obesity and back pain are so intimately linked? Some might say so, but a large study from **Hong Kong (China)** answers all. *360* received the recommendation to mention this research from several different quarters. Researchers undertook a population-based cross-sectional study of 2599 Southern Chinese volunteers. Radiological and clinical assessments, including weight and height, were conducted and sagittal MRIs of the lumbar spine obtained. The presence, extent, and severity of disc degeneration, as well as additional radiological and clinical findings, were assessed. Numbers were high, with 1040 males and 1559 females, and a mean age of 41.9 years. Disc degeneration was noted in 1890 (72.7%) subjects, the body mass index (BMI) being significantly higher in those with disc degeneration (mean 23.3 kg/m^2) compared with subjects without disc degeneration (mean 21.7 kg/m^2). A significant increase in the number of degenerated levels, the global severity of disc degeneration, and end-stage disc degeneration with disc space narrowing was seen alongside an elevated BMI.[6] So put away that chocolate éclair, recommends *360*. Obesity is clearly bad for you.

Medicolegal risks of cauda equina syndrome

■ Mention anything medicolegal to an orthopaedic surgeon and you can be almost guaranteed their attention, so a paper from **Cleveland (USA)** on the medicolegal results of a cauda equina syndrome riveted *360* to the spot. The condition is one of the few true surgical emergencies to affect the lumbar spine. Although treatment within 48 hours has been found to correlate with improved outcomes, recovery of bowel and bladder control does not always occur, and loss of these functions can obviously be distressing to patients. This study was a retrospective analysis of medicolegal cases involving cauda equina syndrome. The LexisNexis Academic legal search database was used to obtain medicolegal cases of the condition in order to determine any risk factors for adverse decisions against the provider. Outcome data on trial verdicts were collected, as were associated penalties. Case data were also compiled on age, sex, initial presentation site, initial diagnosis, whether a rectal examination was performed, time to consultation with a specialist, time to completion of advanced imaging studies, time to surgery, and neurosurgical *versus* orthopaedic consultations. The greatest risk of an adverse decision was if the delay to surgery was more than 48 hours. The actual degree of functional loss did not appear to affect the verdicts.[7] However, as 26.7% of the cases involved an initial presentation that included loss of bowel or bladder control, *360* is in full agreement with the authors. That is, there may be a need to caution all patients with spinal complaints of the potential risk of cauda equina syndrome.

Intravenous lidocaine and failed back surgery syndrome

■ How we wish at *360* that all spinal operations were successful. Alas, that is certainly not the case. One solution for persistent neuropathic pain is to consider an intravenous infusion of lidocaine so might this also be effective in cases of failed back surgery syndrome? Researchers from **Daegu (South Korea)** have looked into this as they considered that the pain generated in failed back surgery syndrome may be a result of abnormal impulses from the dorsal root ganglion and spinal cord. This could be as a result of nerve injury and, in their view, could also be particularly sensitive to lidocaine. They thus undertook a randomised, prospective, double-blinded, crossover study of 18 patients with failed back surgery syndrome. The treatments were: 0.9% normal saline, lidocaine 1 mg/kg in 500 ml normal saline, and lidocaine 5 mg/kg in 500 ml normal saline over 60 minutes. The patients underwent infusions on three different appointments, at least two weeks apart, so that all patients received all three treatments. Pain measurement was with both a visual analogue scale and a neuropathic pain questionnaire. Interestingly, both lidocaine (1 mg/

kg, 5 mg/kg) and placebo significantly reduced the intense, sharp, hot, dull, cold, sensitivity, itchy, unpleasant, deep and superficial components of pain. However, the degree of change was no different either between the lidocaine and placebo, or within the lidocaine treatments themselves, for any of the pain responses, except sharp, dull, cold, unpleasant, and deep pain. This study shows that 1 mg/kg, or 5 mg/kg of intravenous lidocaine, and placebo were effective in patients with neuropathic pain attributable to failed back surgery syndrome. However, the effect of lidocaine did not differ greatly from placebo saline.[8] We assume at *360*, this means treatment for failed back surgery syndrome will continue to, dare we say it, fail. Back to the drawing board for specialists in pain relief, perhaps?

Reconstructing donor site defects

■ From **Sydney (Australia)** comes a helpful systematic review into an extremely common orthopaedic manoeuvre – the harvesting of bone graft from an iliac crest. This is widely undertaken during spinal surgery. However, its use is associated with significant donor site morbidity, particularly pain. Reconstructive procedures of the iatrogenic defect have been investigated as a technique to alleviate these symptoms. Yet are they worth it? The goal of this study was to assess the effects of reconstruction *versus* no reconstruction after the harvesting of iliac crest bone in adults undergoing spinal surgery. Randomised (n = 3; 96 patients) and non-randomised (n = 2; 82 patients) controlled trials were included in the review. The results suggested that iliac crest reconstruction might be useful in reducing post-operative pain, decreasing functional disability, and improving cosmesis.[9] So, we conclude at *360*, it seems another step is required at the harvesting of bone graft from the iliac crest. Reconstruction is needed, too.

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