

Time to reconsider steroid injections in the spine?

Steroid injections to the spine provide no advantage over placebo, but do carry risks of harm

Glucocorticoid (often simply called “steroid”) injections into the spine, a procedure frequently performed by specialist radiologists using imaging for localisation, are increasingly being used to treat non-specific low back pain or leg (radicular) pain due to disc herniation or spinal stenosis. A report from the United States shows a sixfold increase in Medicare expenditure for epidural steroid injections in the 7 years up to 2001.¹ Similarly, an increased number of spinal steroid injections are being given each year in Australia. For example, the number of procedures that have been performed under the Medicare Benefits Schedule item 39013, which includes injection into one or more facet joints under image intensification, has more than doubled in the 10 years to 2011, with over 31500 provided in 2011 and over 35000 in 2012.²

However, systematic reviews that have investigated the benefits of these procedures for different indications have, at best, drawn uncertain conclusions. A 2008 Cochrane review that included 18 randomised trials (1179 participants) of epidural, facet joint or “trigger point” injections for subacute or chronic low back pain found no strong evidence for or against the use of any type of injection therapy and, specifically, found no evidence of benefit of steroid injections compared with placebo.³ Other reviews of spinal steroid injections for back pain or radiculopathy (including less rigorous trials) concluded that, at best, spinal steroid injections may provide short-term benefits (possibly 2–6 weeks), although the evidence of effectiveness is weak, and the effect is independent of the method of administration (interlaminar, caudal, foraminal).^{4,5} Studies in which local anaesthetic was used in the placebo injection (local anaesthetic is usually used with steroid injections) have shown no difference between treatment groups for disc herniation or spinal stenosis.^{6–9}

The injection of steroid in and around the spine is generally considered a safe procedure. In nine of the 18 trials included in the 2008 Cochrane review, adverse effects such as headache, dizziness, transient local pain, paraesthesia and nausea were reported in a small numbers of patients undergoing steroid spine injection.³ While reports of death are rare, serious adverse events such as cauda equina syndrome, septic arthritis, discitis, paraspinal abscesses, arachnoiditis, encephalopathy and paraplegia have been reported.^{4,10,11} Steroid injections into the spine have also been associated with systemic effects such as adrenal suppression,¹² and with subsequent vertebral fractures.¹³

Recent reports of meningitis and associated deaths after spinal steroid injections due to fungal contamination of steroid prepared in the US¹⁴ force us to re-examine the risk–benefit ratio for spinal steroid injections, and the rationale for their continued use. The continued and increasing use of steroid injections is likely explained by doctors’ observing that the condition of most patients improves after injection, and by patient preference. However, the fact that high-quality blinded and controlled trials have been unable to

show any significant benefits of steroid over placebo (saline or local anaesthetic) injections indicates that the steroids themselves have no direct therapeutic effect. As well as the placebo effect, other factors such as regression to the mean and a favourable natural history may also explain the observed improvements.

Given the lack of evidence for a clinically important benefit over placebo, a small but not insignificant risk of harm, and the rising costs associated with their increasing use, is there a justification for continued use of spinal steroid injections for low back pain or radicular symptoms? In our opinion, placebo treatment that has a risk of harm is not justified outside an experimental framework. Unless declared, the use of such a placebo is deceitful and potentially harmful. Furthermore, the use of placebo treatments in medicine reinforces a false belief in their effectiveness, and leads to a lack of distinction between mainstream medicine and the numerous forms of alternative medicine, many of which rely on the placebo effect.

Based on systematic reviews of best available evidence, 2009 recommendations from the United Kingdom National Institute for Health and Clinical Excellence (NICE) advised against offering any injections of therapeutic substances (including steroid) into the back for persistent low back pain.¹⁵ In our opinion, withdrawal of public funding for spinal steroid injections for low back pain and/or radiculopathy in Australia should be considered on the basis of our knowledge of the placebo nature of the treatment, the costs and, not least, because of the likelihood of harm.

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