MRI in follow-up assessment of sciatica treatment

A randomised controlled trial comparing surgery with conservative care for sciatica after lumbar disc herniation suggests that MRI at follow-up does not distinguish between patients with favourable and unfavourable outcomes after treatment.

Overview: Sciatica is the term for symptoms of pain, tingling and numbness caused by compression or irritation of the root of the sciatic nerve. In about 90% of cases, sciatica is caused by a herniated disc in the lumbosacral spine (Koes et al. 2007). In most patients, sciatica resolves spontaneously within 6–12 weeks with conservative treatment, such as over-the-counter painkillers and exercise. Those with persistent or recurrent sciatica might benefit from surgery to remove the symptomatic disc herniation and decompress the nerve.

MRI is commonly used to diagnose lumbar disc herniation and in patients with persistent or recurrent signs of sciatica. However, the value of repeating MRI in patients with ongoing sciatica is questionable because around half of people without symptoms have signs of disc herniation on imaging (Jensen et al. 1994).

See the NICE Evidence Services topic page on sciatica for a general overview of this condition.

Current advice: The NICE Clinical Knowledge Summary on sciatica (lumbar radiculopathy) recommends initial management with self-care advice, analgesia (paracetamol and stronger analgesics if necessary), or a standard non-steroidal anti-inflammatory drug. If pain or disability remain for more than 1–2 weeks, referral for physiotherapy or epidural injection of corticosteroid should be considered. If sciatica is still disabling and distressing after 6–8 weeks, the patient should be referred to specialist low back pain and sciatica services. For continuing pain or disability despite appropriate treatment (including surgery), referral to a multidisciplinary back pain service or chronic pain clinic should be considered.

Clinical judgement should be used to decide if and when to follow up, although advice should be given to seek urgent review for symptoms suggesting cauda equina syndrome. Most people will only need to return for follow-up when necessary. When following up, the diagnosis should be reviewed (checking for red flags for serious conditions and signs and symptoms of other conditions that can cause sciatica), and how pain and disability have responded to treatment should be assessed.

NICE has a guideline (currently being updated) and pathway on management of low back pain, but neither cover management of sciatica.

New evidence: el Barzouhi et al. (2013) studied MRI findings at 1-year follow-up in patients from a randomised controlled trial (n=283) comparing surgery with conservative care in people with a 6-to-12-week history of sciatica and radiologically confirmed lumbar disc herniation (Peul et al. 2007). Patients from 9 hospitals in the Netherlands were randomly assigned to early surgery, or to prolonged conservative treatment for 6 months with surgery in patients whose symptoms did not improve or became worse.
el Barzouhi et al. (2013) looked at 267 patients (94% of those originally randomised) who had available MRI results 1 year after randomisation (131 randomised to surgery and 136 to conservative care). Two neuroradiologists and 1 neurosurgeon assessed all follow-up scans for definite absence of disc herniation or definite, probable or possible herniation. Patients completed a 7-point Likert scale of global perceived recovery at 1 year after treatment, with ‘favourable outcome’ defined as complete or nearly complete disappearance of symptoms.

At follow-up, fewer patients were considered to have a herniated disc on MRI after surgery (21%) than after conservative treatment (60%, p<0.001). Overall, 84% of patients reported having a favourable outcome at 1 year (85% in the surgery group and 83% in the conservative treatment group, p=0.65). Rates of favourable outcome were similar among patients with disc herniation (85%) and with no herniation (83%, p=0.70).

Presence of disc herniation was not significantly different between those with a favourable outcome (35%) and those with an unfavourable outcome (33%, p=0.70). The presence of disc herniation on MRI did not discriminate between patients with a favourable outcome and those with an unfavourable outcome (area under the receiver-operating-characteristic curve=0.48, 95% confidence interval [CI] 0.39 to 0.58). The authors concluded that anatomical abnormalities on follow-up MRI did not distinguish between patients with favourable and unfavourable outcomes after treatment for symptomatic disc herniation.

**Commentary:** “MRI has an important role in people with sciatica (radicular pain) that is not resolving after about 6 weeks. It helps identify people for whom surgery should be considered. The role of repeat MRI scans in those whose sciatica symptoms continue, or whose symptoms recur, has not been defined.

“The finding that there is no relationship between clinical outcome and MRI findings after 1 year in a population with sciatica and disc prolapse at baseline is most striking. This suggests that there is little point in requesting further MRI scans in people with previous disc prolapse and persistent sciatica, regardless of treatment. These data were derived from a very specific population and may not be generalisable to all people with chronic sciatica. Nevertheless, the data do not support the use of MRI for people with chronic sciatica.

“Undertaking MRI scans that are not going change treatment is a poor use of available resources. Although there is no radiation risk from MRI, using this imaging technique in sciatica can put patients at increased risk of harm by increasing rates of surgery. In the absence of progressive neurological deficits, it is difficult to see a routine role for MRI in the management of chronic sciatica.” – **Professor Martin Underwood, Director, Warwick Clinical Trials Unit, Warwick Medical School.** Professor Underwood was chair of the Guideline Development Group for the NICE clinical guideline on early management of persistent non-specific low back pain

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