

**Question: Do orally administered corticosteroids reduce acute sciatic pain in adults more than placebo?**

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**Answer:** No

**Date answer was determined:** September 1, 2009

**Level of evidence for the answer:** B

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**SUMMARY OF THE ISSUES**

Primary care physicians frequently encounter the task of assisting a patient with acute sciatic pain. Men and women are affected equally. Forty percent of the population will be affected and most of these individuals will be between the ages of 40 and 60.<sup>1</sup> A large majority of these patients will recover spontaneously and return to their normal level of function within one to three months of the onset of symptoms. Approximately 5%, however, will require a more protracted course of treatment that will account for approximately 75% of costs associated with the care of low back pain.<sup>2,3</sup>

There are different approaches to the treatment of sciatic pain. The most general classifications of these treatments are those which are interventional and those which are non-interventional. Interventional treatments, which include epidural steroid injections, chemonucleolysis, intradiscal corticosteroid injections, nerve blockade, and surgery, are often more costly than non-interventional approaches and do not provide the patient with significant improvement of symptoms.<sup>2</sup>

If patients with acute sciatic pain could experience significant improvement from the use of a non-interventional therapy, such as oral corticosteroid therapy, this would provide a relatively cost-efficient way to manage their pain, decrease overall cost of therapy, and get them back to their baseline functional status more quickly.

Lumbar disc herniation is thought to be the major etiology of sciatic pain. Steroids decrease the amount of systemic inflammatory mediators as well as decreasing the overall damage to inflamed tissues.<sup>4</sup> Theoretically, if oral corticosteroids are administered to a patient experiencing acute sciatic pain, this decrease in the inflammatory response could improve pain and decrease recovery time.

**SUMMARY OF THE EVIDENCE**

A double-blind controlled trial found that while pain measurements did improve amongst subjects receiving

prednisone, there was no significant difference between the improvement they experienced and that which was reported by the placebo group.<sup>4</sup> Twenty-seven subjects were enrolled in the trial. They were divided by sequential assignment into a group of 13 who received prednisone in a nine-day taper dose (60 mg x three days, 40 mg x three days, and 20 mg x three days) and 14 who received placebo pills that were identical in appearance to the prednisone but chemically inactive. All subjects were from the Kaiser Permanente Medical Center in Santa Rosa, California, and all were pulled from the adult primary care and Emergency Department populations. All subjects were required to meet three criteria before they were allowed into the study: 1) they must have a diagnosis of acute sciatica, 2) they must be 20-60 years of age, and 3) their symptoms have to have started within the last seven days. Both groups also received NSAIDs and physical therapy and were instructed to continue activity as tolerated. There was no significant difference in gender assignment amongst the groups or in age. All subjects were seen on set scheduled visits and underwent a physical exam focused on eight specific measurements of activity. They also completed three separate questionnaires on these visits: 1) 12-item Health Status Questionnaire (SF-12), 2) Roland-Morris Disability Questionnaire, 3) Roland-Morris Pain Rating Scale. Statistically significant improvement in pain scoring was seen at all visits in subjects who received prednisone. The control subjects did not show consistent statistically significant improvement in pain scoring until week four. (They did show statistically significant improvement in week two, but not in week three.) There was no significant difference between pain scoring amongst the two groups at any time. There was no significant difference seen between the prednisone and placebo groups regarding mental/physical health scoring, disability scoring, or return to work, though both groups improved in these areas.

A second prospective double-blind controlled trial found that oral dexamethasone showed no significant benefit over placebo in the treatment of sciatic pain.<sup>5</sup> Thirty-three subjects were randomly assigned to receive either oral dexamethasone or placebo for seven days. Subjects qualified for the study if they had one sign and one symptom from a preset list of signs/symptoms of sciatic pain. Subjects in the dexamethasone group received 64 mg x one day, 32 mg x one day, 16 mg x one day, 12 mg x one day, and 8 mg x three days. Subjects in the placebo group received chemically inactive pills identical to the dexamethasone pills in appearance. Subjects had follow-up appointments after seven days of treatment and again at one

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to four years after treatment. They were restricted to strict bed rest during the seven day treatment. They were asked to describe their symptoms in their own words and to complete a pain scale questionnaire devised by the study designers. The subjects were also asked about their ability to work and if they were missing work because of their sciatic pain. A neurological exam was completed at each follow up exam. Twenty-one subjects were in the dexamethasone group and 12 in the placebo group (six were lost to follow-up, five from the dexamethasone group and one from the placebo group). Some of the subjects did report some improvement with the dexamethasone; however, these findings were not significant.

### COMMENTS

Very little research has been done on the efficacy of orally administered corticosteroids in the treatment of sciatic pain. The two articles that were reviewed here suggest that there is no significant increase in pain relief when subjects with sciatic pain are given a short course of orally administered corticosteroids as compared to placebo.<sup>4,5</sup> Interestingly, Holve and Barkan did find that subjects who were given oral prednisone within seven days of the onset of sciatic pain did achieve pain relief, improved mental well-being, and improvement in disability scores faster than those who were given placebo.<sup>4</sup> There is very little research available to evaluate this topic. The few studies that have been done are also limited by poor sample size.

It could be argued that if oral steroids allow for faster relief of sciatic pain, subjects could regain baseline function more quickly and return to work sooner. Holve and Barkan

specifically state in their article, however, that there was no difference in the amount of time that subjects took to return to work whether they received prednisone or placebo. It is clear that oral corticosteroids reduce inflammation and also have mood-elevating properties, and this could explain the apparent expedited relief experienced by these subjects.<sup>4</sup>

### SEARCH TERMS

Sciatica, Corticosteroids, Oral Administration

### INCLUSION AND EXCLUSION CRITERIA

From all articles reviewed, we selected only those articles that addressed the use of orally administered corticosteroids for the purpose of reducing sciatic pain in adults. We limited our search to articles in English with human subjects. Only two studies could be found that addressed the use of orally administered corticosteroids in the treatment of sciatic pain as compared with placebo.

### REFERENCES

1. Frymoyer JW. Back pain and sciatica. *New England Journal of Medicine* 1988; 318(5): 291-300.
2. Chou R. Subacute and chronic low back pain: Nonsurgical interventional treatment. In UpToDate, Basow, DS (Ed), UpToDate, Waltham, MA, 2009.
3. Roland M, Morris R. A study of the natural history of back pain. Part I: development of a reliable and sensitive measure of disability in low-back pain. *Spine* 1983;8(2):141-144.
4. Holve RL, Barkan H. Oral steroids in initial treatment of acute sciatica. *Journal of the American Board of Family Medicine* 2008;21(5):469-474.
5. Haimovic IC, Beresford HR. Dexamethasone is not superior to placebo for treating lumbosacral radicular pain. *Neurology* 1986;36(12):1593-1594.