

EFFICACY OF INTRAVENOUS METHYLPREDNISOLONE ON SCIATIC PAIN

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INTRODUCTION

Sciatica clinically occurs in 4-6% of the U.S. population.¹ Herniated lumbar intervertebral disk and spinal stenosis are the common causes of sciatica. Sciatica leads to impairment which accounts for significant medical attention and cost with the use of a range of responses including rest which may require hospitalization because of incapacitation, opiate analgesics, non-steroidal antiinflammatory drugs, physical therapy, lumbar epidural steroid injection, and ultimately surgery if the pain and impairment does not resolve through natural history and is not mandated by cauda equina syndrome or progressive neurologic deficit. The goal of evaluation and management is to provide pain relief and minimize disability.

The primary care physician often is the first point of patient contact and the orthopaedic surgeon may be consulted. We conducted an observational investigation of the role of an intravenous (i.v.) methylprednisolone protocol in the management of acute sciatica caused by herniated lumbar intervertebral disk and degenerative spinal stenosis.

METHODS

Sixty patients with acute sciatica were enrolled in the study on the basis of a clinical diagnosis made solely on the criteria of history and physical examination. Radiculopathy and/or root tension signs, especially the bowstring test,² were used as the signs for including patients in the study. Methylprednisolone, 1 gram diluted in 250ml of normal saline, administered i.v. over 1.5 hours, was used in all patients. The method was on the basis of a standard protocol utilized in the treatment of multiple sclerosis. Patients were examined at the time of presentation and follow-up. Informed consent was obtained prior to treatment. Telephone interviews were used to obtain

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follow-up data. Pain was registered on a 0-10 visual analogue scale.

RESULTS

Patients ranged in age from 29 to 92 years. Twenty-four patients (40%) were male. Pain relief was noted in 80% of patients, of which 60% had marked relief, 15% moderate, and 25% mild relief. Of those with relief, 75% had recurrence of pain. 63% noted relief within 24 hours of treatment. The most common side effects were a transient metallic taste during infusion and transient sleep disturbance on the night following infusion.

DISCUSSION

The history of sciatica and the ruptured lumbar intervertebral herniated disk has long been an interest of clinical research clinically in the Harvard orthopaedic community, particularly at MGH.³ We have been interested in the pathophysiology of the herniated disk and examined alternative concepts of its formation and pathophysiology.⁴ The fundamental objectives of a musculoskeletal operation is to relieve pain, reduce deformity, and improve function. At the area of the lumbar spine, the surgery focuses on decompression and stabilization through arthrodesis. Mixer was concerned over the over-utilization and complications of lumbar discectomy for the management of low back pain and sciatica.⁵ These concerns are current to this day and have increased because of the socioeconomic issues of technologies increasing in utilization and fiscal cost, while the concepts of care are redefined from the traditional medical concern directed toward the individual patient struck with pain and suffering to concern for the cost effectiveness of an intervention and the "bottomline" outcome to the entire medical delivery system. These contemporary conflicts are discussed on a daily basis in our communities, hospitals, and medical schools. It is a continuing interest at Harvard Medical School where teaching medicine as well as the agenda of medical technology and the concepts of ethics and caring are methodically examined.

It is within these contemporary challenges that we undertook this study of a common clinical condition, sciatica. The method provides some insight into the evaluation and management of sciatica and addresses an alternative of acute care based upon the simplicity of history and physical examination. It provides medical students with a mixture of differential diagnoses and analytical thinking while providing traditional care cost effectively to the patient, provider, and the infrastructure of the reimbursement system.

Methylprednisolone i.v. can provide transient relief of acute sciatica. It can be administered solely on the basis of a clinical diagnosis made by history and physical examination. Pain tends to recur within days so that the use of this intervention is considered short term and is easily done in an ambulatory setting in order to allow the continued activity of the patient, the avoidance of narcotics with their adverse side effects, and acute hospitalization which contributes to cost and prolonged impairment. Follow-up lumbar epidural steroid injection is often used for more prolonged non-operative care

of the underlying disorder. The protocol is simple, easy to administer, and is known to be free of the complications associated with prolonged use of corticosteroids. Although not a cure for the underlying disorder, the protocol can provide an effective acute response providing relief to both the patient and the provider who is confronted with the problem of what to do with his or her patient who has acute pain and impairment requiring a timely response. Further research including a blinded, prospective cohort study will be of value.

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