Cost-effectiveness of Cervical Epidural Steroid Injections: A 3-month Pilot Study

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Introduction

There are conflicting reports on the short-term and long-term quality of life (QOL) outcomes and cost effectiveness of cervical epidural steroid injections (ESIs). The present study analyzes and represents the only cost effectiveness analysis of ESIs versus conservative management for patients with radiculopathy or neck pain in the short-term.

Methods

50 patients who underwent ESI along with physical therapy and pain medication (ESI cohort) and 29 patients who received physical therapy and pain medication alone (control cohort) for cervical radiculopathy and neck pain of less than 6 months duration were included. Three-month postoperative health outcomes were assessed based on Pain Disability Questionnaire (PDQ), Patient Health Questionnaire (PHQ-9), and EuroQol-5 Dimensions (EQ-5D; measured in quality adjusted life years (QALYs)). Direct medical costs were estimated using Medicare national payment amounts and indirect costs were based on patient missed work days and patient income. At the three-month visit, we assessed for cost effectiveness using a 3-month threshold of $25,000/QALY gained.

Results

The ESI cohort experienced both statistically significant ($p<0.01$) and clinically relevant (exceeding the MCID) improvement in the EQ-5D score while the control cohort did not (0.13 QALYs vs. 0.02 QALYs, respectively; $p=0.01$). There were no significant differences in direct or indirect costs between the cohorts. The three-month cost-utility ratio for the ESI cohort was significantly lower ($21,883.67/QALY gained) than that for the control cohort ($176,411.96/QALY gained) ($p<0.01$). The three month ICER for an ESI versus conservative management was negative, indicating that an ESI provides greater improvement in quality of life at a lower cost than physical therapy and medication alone.

Conclusions

ESIs provide significant improvement in quality of life within three months for patients with cervical radiculopathy and neck pain. ESIs are more cost-effective compared to conservative management alone in the short-term. The durability of these results must be analyzed with longer term studies.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of ESIs as an alternative to surgery, 2) Discuss both outcomes and costs to the patient from various conservative treatments, and 3) Understand why cost effectiveness of ESIs in the short-term may not hold in the long-term

References

1.Anderberg L, Annertz M, Persson L, et al. Transforaminal steroid injections for the treatment of cervical radiculopathy: a prospective and randomised study. Eur Spine J. 2007;16:321-8.

2.Cohen SP, Hayek S, Semenov Y, et al. Epidural steroid injections, conservative treatment, or combination treatment for cervical radicular pain: a multicenter, randomized, comparative-effectiveness study. Anesthesiology 2014;121:1045-55.

3.Huston C. Cervical epidural steroid injections in the management of cervical radiculitis: interlaminar versus transforaminal. A review. Curr Rev Musculoskeletal Med. 2009;2:30-4.

4.Price C, Arden N, Coglan L, et al. Cost-effectiveness and safety of epidural steroids in the management of sciatica. Health Technol Assess 2005;9:1-58.

5.Straus B. Chronic pain of spinal origin: the costs of intervention. Spine 2002;27:2614-19.

6.Whynes DK, McCahon RA, Ravenscroft A, Hardman J. Cost effectiveness of epidural steroid injections to manage chronic lower back pain. BMC Anesthesiology 2012; 12:26.

7.Manchikanti L, Falco FJ, Pampati V, Cash KA, Benyamin RM, Hirsch JA. Cost utility analysis of caudal epidural injections in the treatment of lumbar disc herniation, axial or discogenic low back pain, central spinal stenosis, and post lumbar surgery syndrome. Pain Physician 2013;16:E129-43.

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