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Cost-benefit analysis of rx medial branch block test for medial branch block radiofrequency

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Abstract

Introduction:

Lumbar facet-mediated pain may likely result from repetitive stress and trauma to the joint and/or joint capsules causing chronic inflammation and capsular distention. Conventional radiofrequency ablation (RFA), is a treatment method utilizing radiofrequency current to create a thermal lesion around probe or needle. This treatment is indicated for pain of nociceptive origin from the facet joints. The overall safety profile related to the use of RFA is favorable. Some small retrospective studies exist and report complications; typically are self-limited and include pain after injection, transient worsening of back pain, thermal injuries and infection. While complications may occur, the rate of complication is quite low. Similarly, the use of direct visualization through fluoroscopy and confirmation with sensory and motor testing also contributes to the low complication rate. Nevertheless, RFA is typically preceded by diagnostic medial branch nerve blocks (MBB) with local anesthetic solutions, with or without steroid, followed by reassessment of pain reduction.

In 2010 Cohen et al demonstrated that in the United States proceeding to radiofrequency denervation without a diagnostic block is the most cost-effective treatment paradigm. But this data is not certainly related to Italian Health Service

Method:

The objective of this paper is to determine the ratio of success of the MBB in which the cost of the test is the same as the cost of the procedure without the test (called "break-even point").

For the calculation of the break-even point we need the direct and indirect costs of each procedure

The cost of MBB consists of a few euros of material. The main costs are the operating room and the cost of the employees

Result:

The cost of the medial branch radiofrequency is the needle's radiofrequency cost in addiction to MBB costs. In Tuscany the cost of the needle's radiofrequency is 160 euros (the generator is on loan for use), and the cost of the first hours of the operating room with a Pain Phisician, a nurse and a radiology technician is 200 euros. The average radiofrequency procedure durations is about 60 minutes and the time of MBB test is about 45 minutes (in both included time to change).

The cost of the complication of each procedure is comparable.

The break-even point is 58%. If the average of MBB success is more than the break-even point, the MBB cost analysis is disadvantageous

Conclusion:

Rx guided MBB is not a cost-benefit procedure. Ultrasound MBB tests are a safe and cheap alternative, but ultrasound-guided lumbar MBBs are associated with a significant risk of incorrect needle placement when confirmed by fluoroscopy or CT. We must consider the RX procedure only if we consider a very hight risk of failure. If we want a cost-benefit diagnostic and prognostic test we can do MBB at the same time of RF denervation.

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