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## **Percutaneous adhesiolysis in the management of chronic low back pain in post lumbar surgery syndrome and spinal stenosis: a systematic review**

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### **CRD summary**

The review concluded that there was fair evidence that percutaneous adhesiolysis was effective in relieving low back pain and/or leg pain due to post lumbar surgery syndrome or spinal stenosis. Given the paucity of the evidence base and limitations in the reporting the authors conclusions may not be reliable.

### **Authors' objectives**

To assess the effectiveness of percutaneous adhesiolysis in the treatment of chronic (at least six months duration) low back and/or leg pain in post lumbar surgery syndrome or spinal stenosis. A secondary objective was to evaluate the severity of risks and complications associated with percutaneous adhesiolysis.

### **Searching**

PubMed, EMBASE and The Cochrane Library databases and Google Scholar were searched up to June 2012. Search terms were reported. References of relevant articles were searched and authors active in the field were contacted. Only studies published in English were considered.

### **Study selection**

Randomised controlled trials (RCTs) and observational studies that assessed percutaneous adhesiolysis (defined in the paper) in patients (at least 18 years old) with chronic intractable low back pain of at least six months duration due to post lumbar laminectomy syndrome or spinal stenosis (with or without radicular findings) were eligible for inclusion. The primary outcome was pain relief. Secondary outcomes of interest included functional improvement, change in psychological status, return to work and reduction in opioid use or other interventions.

Studies of forceful epidural injections without targeted delivery or adhesiolysis were excluded. Non-randomised studies were included if at least 50 participants (minimum 25 in each study arm where more than one group) were enrolled. Only studies considered to be of clinical relevance were included. Clinical relevance was assessed according to criteria suggested by the Cochrane Back Review Group (at least three of five questions had to be met for a study to be considered clinically relevant).

Adhesiolysis procedures and individual study inclusion and exclusion criteria varied (details reported in the review). Percutaneous adhesiolysis does not provide permanent relief; some studies stated that injections were given three to four times per year. Controls included epidural injection, normal saline and physical therapy. Study diagnosis included post lumbar surgery syndrome, low back and leg pain due to fibrosis from various causes, radiculopathy and spinal stenosis. Pain was measured using various pain questionnaires and visual analogue scales. Adverse events were reported.

The authors did not state how many reviewers performed the study selection.

### **Assessment of study quality**

The quality of RCTs was assessed using a modified Cochrane Risk of Bias tool. RCTs that met at least nine of the 12 criteria were considered of high quality; studies that met six to eight criteria were considered to be of moderate quality. Studies that met fewer than six criteria were excluded.

The quality of the observational studies was assessed using the Newcastle-Ottawa Scale. Cohort studies were required to meet a minimum of seven out of 13 criteria and case-controlled studies a minimum of five out of a possible 10 to be included.

Strength of the overall evidence was graded using United States Preventative Services Task Force criteria.

It appeared that two reviewers undertook the quality assessment.

### **Data extraction**

Study details were extracted and presented in tables. A brief narrative summary of the results was presented.

Two reviewers independently extracted data on outcomes of interest; any disagreements were resolved through discussion with a third reviewer. Authors of the primary studies were contacted if additional information was required.

Where at least five RCTs that met eligibility criteria were identified for each condition evaluated, observational studies were not used.

### **Methods of synthesis**

A narrative synthesis was presented. Results were grouped by outcome and etiology (post lumbar surgery syndrome or spinal stenosis). Clinically meaningful improvement was defined as a three-point or 50% improvement in pain relief or a 40% improvement in functional status. Successful results in at least 40% of patients were considered as positive improvement.

### **Results of the review**

Seven studies were included in the effectiveness analysis: five RCTs (403 patients) and two observational studies (127 patients). High drop-out rates were reported in several studies. Three of the included randomised trials allowed participants to cross-over treatment at a given time point (three months). Follow-up was up to 12 months.

All studies that met eligibility criteria were considered to be clinically relevant. Four of the five RCTs were high quality and one was moderate quality. The two cohort studies were moderate quality; one cohort study that met inclusion criteria was deemed to be of poor quality and excluded from the effectiveness analysis.

Three high quality RCTs were reported to show significant (greater than 50%) pain relief with adhesiolysis for treatment of chronic low back and leg pain due to post lumbar surgery syndrome. However, it was difficult to interpret the results for one of the RCTs as evidence tables reported inconsistent findings; one table suggested significant improvement and the other showed no difference in outcomes. This evidence was graded by the authors as fair according to US Preventative Services Task Force criteria.

One high quality RCT and one moderate quality cohort study found significant improvement in pain relief with adhesiolysis in the treatment of chronic low back pain and leg pain due to spinal stenosis. This evidence was graded by the authors as fair according to US Preventative Services Task Force criteria.

Complications of percutaneous epidural adhesiolysis were reported but were not included in this summary as it appeared that additional studies that did not meet the review eligibility criteria were included in these results.

### **Authors' conclusions**

There was fair evidence that percutaneous adhesiolysis was effective in relieving low back pain and/or leg pain due to post lumbar surgery syndrome or spinal stenosis.

### **CRD commentary**

The review was supported by defined inclusion and exclusion criteria. Several databases were searched. The search was limited by language and publication status and this may mean that relevant studies were missed. It was not clear whether appropriate steps were taken to minimise the likelihood of error and bias during study selection and validity assessment.

There was a formal assessment of study quality and only studies considered to be of good or moderate quality were included in the synthesis. Outcome measures were self-reported and thus subject to the inherent biases of such measures. The reported narrative synthesis was brief. Estimates for individual studies and outcomes were not fully reported and this made it difficult to verify the accuracy of the reported summary. Results are based on a small number of small studies.

Given the paucity of the evidence base and limitations in the reporting the authors conclusions may not be reliable.

### **Implications of the review for practice and research**

Practice: The authors did not state any implications for practice.

Research: The authors recommend that future studies should consider case definition with consistent inclusion and exclusion criteria, technical issues, frequency/type/volume of injectate, outcome measures and study design.

### **Funding**

No external funding.

### **Bibliographic details**

Helm S, Benyamin RM, Chopra P, Deer TR, Justiz R. Percutaneous adhesiolysis in the management of chronic low back pain in post lumbar surgery syndrome and spinal stenosis: a systematic review. *Pain Physician* 2012; 15(4): E435-E462

### **PubMedID**

22828693

### **Original Paper URL**

[http://www.painphysicianjournal.com/linkout\\_vw.php?issn=1533-3159& amp;vol=15& amp;page=E435](http://www.painphysicianjournal.com/linkout_vw.php?issn=1533-3159& amp;vol=15& amp;page=E435)

### **Indexing Status**

Subject indexing assigned by NLM

### **MeSH**

Adult; Anesthetics, Local /administration & dosage; Chronic Pain /etiology /therapy; Clinical Trials as Topic; Failed Back Surgery Syndrome /therapy; Female; Humans; Injections, Spinal /methods; Low Back Pain /etiology /therapy; Male; Minimally Invasive Surgical Procedures /methods; Orthopedic Procedures /adverse effects; Saline Solution, Hypertonic /administration & dosage; Spinal Stenosis /complications; Steroids /administration & dosage; Tissue Adhesions /therapy

### **AccessionNumber**

12012038259

### **Date bibliographic record published**

10/10/2012

### **Date abstract record published**

19/02/2013

### **Record Status**

This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.