Nerve management during open hernia repair

CRD summary
This review compared inguinal nerve division with nerve preservation in preventing chronic pain following open hernia repair. The authors concluded that inguinal nerves should probably be identified and that division of the genitofemoral nerve may be beneficial. However, due to limitations in the review methods and the reliance on data from observational studies, these conclusions might not be reliable.

Authors' objectives
To evaluate the effects of inguinal nerve identification and division or preservation during open hernia repair on the incidence of chronic post-operative pain.

Searching
PubMed (date not specified), the Cochrane Library (Issue 1, 2006) Google Scholar (date not specified) and Current Controlled Trials (date not specified) were searched; the search terms were reported. References from reviews and additional studies were also checked. Studies were limited to English, French and German language publications.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) and prospective or retrospective cohort studies were eligible for inclusion.

Specific interventions included in the review
Studies of inguinal nerve (ilioinguinal, iliohypogastric and the genital branch of the genitofemoral nerve) identification and subsequent division or preservation during open hernia repair were eligible for inclusion. The included studies compared ilioinguinal nerve division versus preservation; no identification of any nerve versus identification and preservation of all nerves; and no identification of the genital branch versus identification and facultative pragmatic division of the genital branch.

Participants included in the review
Studies of people undergoing open inguinal hernia repair were eligible for inclusion. The participants in the included studies were mostly men (range: 77 to 100%) and the mean age ranged from 55 to 68 years.

Outcomes assessed in the review
Studies reporting pain at more than 3 months after hernia surgery were eligible for inclusion. Most of the included studies reported pain at 6 months. Pain was assessed on a variety of different scales and various thresholds were used to class pain as being present.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors stated that study quality was assessed on the basis of methodological reporting, study design, method of randomisation, allocation concealment, blinding, minimisation of bias, sample size and ‘ability to measure true effect’, but the results of the assessment were not reported. Two authors independently assessed validity and any discrepancies were resolved by consensus.

Data extraction
Two authors independently extracted the data and any discrepancies were resolved by consensus.

**Methods of synthesis**

How were the studies combined?
A pooled mean percentage (with 95% confidence interval) of people with chronic pain at 6 months after each type of intervention was calculated for the three RCTs using a random-effects model.

The results of the cohort studies were presented as a narrative.

How were differences between studies investigated?
The study characteristics were tabulated and some differences between the studies were discussed in the text. The authors did not state how these differences were investigated.

**Results of the review**

Seven studies (3,314 participants) were included. Three studies (n=933) were RCTs, three (n=2,291) were prospective cohort studies and one (n=90) was a retrospective cohort study.

Based on the pooled results of the RCTs which compared ilioinguinal nerve identification and division with ilioinguinal nerve identification and preservation, there was no significant difference in the percentage of people who had reported pain at 6 months after surgery. However, in the retrospective cohort study, a significantly lower percentage of people who had ilioinguinal nerve identification and division reported pain at 6 months (3%) compared with people who had ilioinguinal nerve identification and preservation (26%).

There was a significantly lower incidence of pain reported by people who had had identification and preservation of all inguinal nerves in both prospective cohort studies (1.6% and 0%, respectively) compared with people in whom no nerve had been identified (3.7% and 4.7%, respectively).

Pain was also reported to be significantly lower in the prospective cohort study of people in whom there had been identification and facultative pragmatic division of the genitofemoral nerve (1.4%) compared with people in whom there had been no identification of the genital branch of the genitofemoral nerve (4.2%).

**Authors' conclusions**

Inguinal nerves should probably be identified during open repair of hernia. Although there appears to be little difference between dividing and preserving the ilioinguinal nerves in preventing chronic post-operative pain, there is some evidence that facultative pragmatic division of the genitofemoral nerve is beneficial.

**CRD commentary**

The inclusion criteria used for this review were clearly stated, with the exception of comparator interventions. The authors searched a number of relevant sources including a database of current trials. The number of identified studies might have been limited by language restrictions. Steps were taken to limit bias in the validity assessment and data extraction processes. However, some aspects of the validity assessment were unclear and it does not appear that the results were used in the analysis.

Details of the primary studies were provided but there was no systematic analysis of study heterogeneity. Clinical and methodological differences between the included RCTs suggest that it might not have been appropriate to pool data from these studies. All significant findings were based on cohort studies. The finding that ilioinguinal nerve division significantly reduced chronic pain compared with ilioinguinal nerve preservation in the retrospective cohort study contradicts the finding of no difference when the data from the three RCTs were pooled. The authors' conclusions appear to be supported by the available data but, given the reliance on data from observational studies and the methodological limitations of the review, these conclusions might not be reliable.
Implications of the review for practice and research
The authors did not state any implications for practice or further research.

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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.