Preservation versus division of ilioinguinal nerve on open mesh repair of inguinal hernia: a meta-analysis of randomized controlled trials
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CRD summary
This well conducted review concluded that preservation of the ilioinguinal nerve during open mesh repair of inguinal hernia was associated with a decreased incidence of sensory loss, compared with division of the ilioinguinal nerve; no differences were found between the techniques for chronic groin pain or numbness outcomes. Caution in interpretation is warranted due to the limited data available.

Authors' objectives
To compare the outcomes of preservation versus division of the ilioinguinal nerve during open mesh repair of inguinal hernia.

Searching
PubMed, EMBASE, SCOPUS, Cochrane Central register of controlled trials (CENTRAL) and ClinicalTrials.gov were searched to February 2012; search terms were reported. No language restrictions were applied. Reference lists of relevant papers were handsearched and experts in the field contacted in an attempt to identify other relevant studies.

Study selection
Randomised controlled trials (RCTs) that compared preservation versus division of the ilioinguinal nerve during open mesh repair of inguinal hernia were eligible for inclusion. Studies had to clearly report the participant inclusion and exclusion criteria, anaesthetic technique, surgical technique and the definition and evaluation of postoperative outcomes. Studies were excluded if participants were younger than 18 years of age, or if they were undergoing other surgical procedures (such as multiple neurectomies, nonmesh repair and laparoscopic hernioplasty) as well as open mesh repair of inguinal hernia. The primary outcome of interest was occurrence and severity of chronic groin pain during the 12-month postoperative period. Secondary outcomes were the incidence of postoperative numbness and/or hypoesthesia (a reduced sense of touch or sensation) in the inguinal area, and quality of life.

The included studies were from the UK, Italy, Turkey, Iran and Hong Kong, and were published between 2000 and 2010. Most participants were male and the average age of participants ranged from 45 to 65 years. Most patients underwent a Lichtenstein repair. Most trials performed nerve division lateral to the deep ring, after which the cut ends were left alone without implantation into muscle or ligation.

Two reviewers independently screened titles and abstracts retrieved by the searches and three reviewers assessed full papers for eligibility.

Assessment of study quality
Two reviewers independently assessed the quality of the included studies based on the following criteria: randomisation, allocation concealment, blinding, length of follow-up, number of drop-outs, use of intention-to-treat analysis.

Data extraction
Two reviewers independently extracted data to calculate effect sizes, which were presented as risk ratios for dichotomous outcomes and mean differences for continuous outcomes, with 95% confidence intervals; disagreements were resolved by a third reviewer. Authors of included studies were contacted for clarification, where necessary.

Methods of synthesis
Where studies were similar in terms of clinical and methodological characteristics, results were pooled using the DerSimonian and Laird random effects model. Statistical heterogeneity was assessed using $X^2$ and $I^2$.

Results of the review
Six RCTs (1,286 participants, range 40 to 813) were included in the review. Four RCTs reported adequate
randomisation procedures, three used an adequate method of allocation concealment and five were double-blind RCTs. Loss to follow-up was acceptable in four trials and all trials used an intention-to-treat analysis.

There was no significant difference in the incidence of chronic groin pain or numbness at one, six or 12 months after open mesh inguinal repair between patients who had preservation of the ilioinguinal nerve and those who had division of the ilioinguinal nerve. There was substantial heterogeneity between studies for this outcome at all time points.

The degree of pain score at one month after surgery was significantly different between treatment groups, favouring nerve division (MD -0.52, 95% CI -1.03 to -0.01; five RCTs), however there was substantial heterogeneity between studies (I²=74%). There was no significant difference in degree of pain at six or 12 months postoperatively.

The incidence of sensory loss or change was significantly higher in the nerve division group than in the preservation group at six months (RR 1.25, 95% CI 1.02 to 1.53; five RCTs) and at 12 months (RR 1.55, 95% CI 1.01 to 2.37; four RCTs) postoperatively, but there was no difference at one month. There was no evidence of heterogeneity for this outcome at six or 12 months (I²=0%).

Two studies assessed quality of life, but found no significant difference between groups at one, six or 12 months postoperatively.

Authors’ conclusions
Preservation of the ilioinguinal nerve during open mesh repair of inguinal hernia was associated with a decreased incidence of sensory loss at six and 12 months postoperatively, compared with division of the ilioinguinal nerve. No significant differences were found between preservation and division techniques for chronic groin pain or numbness.

CRD commentary
The review question and inclusion criteria were clear. The search strategy was comprehensive and included attempts to identify unpublished studies, reducing the potential for publication bias. No language restrictions were applied, which reduced potential for language bias. Each stage of the review process was undertaken in duplicate, which reduced potential for reviewer bias and error. The quality of the included studies was assessed using appropriate criteria and full results of the quality assessment were reported. Adequate study details were presented. The methods of synthesis appeared appropriate, but the authors state that there were some clinical differences between studies in terms of type of hernia repair and use of co-intervention drugs.

This was a well-conducted systematic review and the authors’ conclusions are likely to be reliable; however, due to the small number of studies included in the meta-analyses and low number of events for some of the outcomes, caution in interpretation is warranted.

Implications of the review for practice and research
Practice: The authors stated that, based on the results of their meta-analysis, they could not universally recommend ilioinguinal neurectomy during open inguinal hernia mesh repair.

Research: The authors did not state any implications for further research.

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