Endoscopic treatments for gastro-oesophageal reflux disease (GORD): an accelerated systematic review
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CRD summary
This review concluded that the efficacy of endoscopic treatments for gastro-oesophageal reflux disease had not been established. The authors' conservative conclusion reflected the evidence presented, but given the potential methodological weaknesses in the review process, heterogeneity between studies, paucity of randomised trials and small sample sizes, the extent to which this conclusion is reliable is unclear.

Authors' objectives
To assess the safety and efficacy of endoscopic treatments for gastro-oesophageal reflux disease (GORD).

Searching
MEDLINE, EMBASE, CINAHL, the Cochrane Library and Science Citation Index were searched without language restrictions from inception to May 2006. Search terms were reported. CRD, Clinicaltrials.gov, the National Research Register, relevant online journals and the Internet were also searched, as were conference abstracts, media reports and manufacturers information. Reference lists of systematic reviews and retrieved studies were handsearched to identify additional articles of interest.

Study selection
Randomised controlled trials (RCTs), non-randomised comparative studies and case-series, with least 10 patients in each study arm, that assessed the efficacy and safety of endoscopic anti-reflux procedures in patients with gastro-oesophageal reflux disease were eligible for inclusion. Outcomes of interest related to efficacy (gastro-oesophageal reflux disease symptoms/quality of life, oesophageal acid exposure, medication usage, procedure time/durability) and safety (mortality, complications and ulceration); studies that did not report clinical outcomes were excluded.

Included interventions were: radiofrequency energy ablation (Stretta Procedure); endoluminal gastroplication (Bard EndoCinch/Wilson-Cook suturing devices and NDO Plicator); and injection/implantation techniques (Enteryx, Gatekeeper Reflux Repair System and Plexiglas).

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 did not state that they formally assessed validity, but for RCTs they reported details of blinding, loss to follow-up and allocation concealment.

The authors did not state how many reviewers performed the validity assessment.

Data extraction
Efficacy and safety data were extracted by one reviewer and checked by a second reviewer, although it was not stated how disagreements were resolved.

Methods of synthesis
A narrative synthesis was provided, supported by tables, with differences between studies discussed in the text.

Results of the review
A total of 33 studies were included in the review (n=1,963 patients, range seven to 202); four studies were RCTs, four studies were non-RCTs and 25 studies were case-series. Three of the four RCTs attempted some form of blinding, allocation to treatment in three trials was by patient choice or physician referral and three trials reported minimal losses
to follow-up. The duration of follow-up ranged from one to 36 months.

For a select group of patients, the Stretta Procedure produced improvements in symptoms and quality of life comparable to laparoscopic fundoplication and superior to sham treatment; there were also fewer complications (two studies). Compared with laparoscopic fundoplication, EndoCinch yielded similar, or slightly worse, gastro-oesophageal reflux disease symptoms, quality of life and oesophageal acid exposure, but was associated with fewer serious adverse events (three studies). A positive effect was indicated between six and 12 months after treatment for symptom, quality of life scores and medication usage for the NDO plicator (two studies). Evidence for other interventions was inconclusive due to a lack of synthesis. No deaths were reported from any procedure.

**Authors’ conclusions**
The scope, applicability and efficacy of endoscopic anti-reflux therapies for the treatment of gastro-oesophageal reflux disease had not been established. For selected patients with mild to moderate gastro-oesophageal reflux disease, dependent upon medication or unable to undergo surgery, these treatments may offer an alternative.

**CRD commentary**
The review question and inclusion criteria were clear. A thorough search for studies without language restrictions was undertaken, reducing the likelihood of language bias. There was no apparent search for unpublished studies, so some studies may have been missed. With the exception of data extraction, which was undertaken in duplicate, there was no detail on how the review process was conducted, so it was unclear whether methods were used to reduce error and bias. Also, there was no formal assessment of the validity of the included studies, although some quality data was reported for RCTs. Given the heterogeneity between the studies, the decision to employ a narrative synthesis was appropriate. The authors’ conservative conclusion reflected the evidence presented, but given the potential methodological weaknesses in the review process, heterogeneity between studies, paucity of randomised trials and small sample sizes, the extent to which this conclusion is reliable is unclear.

**Implications of the review for practice and research**
**Practice:** The authors stated that endoscopic anti-reflux therapies for the treatment of gastro-oesophageal reflux disease may provide an alternative treatment for selected patients with mild to moderate gastro-oesophageal reflux disease who are dependent upon medication and are reluctant, or unable to undergo surgery. When applied in routine clinical practice such procedures should be closely monitored.

**Research:** The authors stated that future studies with long-term follow-up should include concurrently controlled patient groups to reduce the effect of secular trends. Clearly defined patient selection, especially with respect to medication usage, will help to resolve where these procedures fit in the treatment choices available for patients with gastro-oesophageal reflux disease.

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