Minimal access surgery for people with gastro-oesophageal reflux disease – the REFLUX trial

The effectiveness and cost-effectiveness of minimal access surgery amongst people with gastro-oesophageal reflux disease – a UK collaborative study. The REFLUX trial

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Executive Summary

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Executive summary

Background

The advent of less invasive fundoplication performed laparoscopically offers new opportunities for the management of people with chronic symptoms of gastro-oesophageal reflux disease (GORD).

Objectives

To evaluate the clinical effectiveness, cost-effectiveness and safety of a policy of relatively early laparoscopic surgery compared with continued medical management amongst people with GORD judged suitable for both policies.

Methods

Design

(a) A randomised trial (with parallel non-randomised preference groups) comparing a laparoscopic surgery-based policy with a continued medical management policy to assess their relative clinical effectiveness.
(b) An economic evaluation of laparoscopic surgery for GORD, comparing the cost-effectiveness of the two management policies, to identify the most efficient provision of future care and describe the resource impact that various policies for fundoplication would have on the NHS.

Setting

A total of 21 hospitals throughout the UK with a local partnership between surgeon(s) and gastroenterologist(s) who shared the secondary care of patients with GORD.

Participants

The 810 participants, who were identified retrospectively or prospectively via their participating clinicians, had both documented evidence of GORD (endoscopy and/or manometry/24-hour pH monitoring) and symptoms for longer than 12 months. In addition, the recruiting clinician(s) was clinically uncertain about which management policy was best.

Intervention

Of the 810 eligible patients who consented to participate, 357 were recruited to the randomised arm of the trial (178 allocated to surgical management, 179 allocated to continued, but optimised, medical management) and 453 were recruited to the parallel non-randomised preference arm (261 chose surgical management, 192 chose to continue with best medical management). The type of fundoplication was left to the discretion of the surgeon.

Main outcome measures

Participants completed a baseline questionnaire containing a disease-specific outcome measure (the REFLUX questionnaire, developed specifically for this study), the Short Form with 36 Items (SF-36), the EuroQol-5 Dimensions (EQ-5D) and the Beliefs about Medicines and Surgery questionnaires (BMQ/BSQ). Postal questionnaires were completed at participant-specific time intervals after joining the trial (these were at times equivalent to approximately 3 and 12 months after surgery). Intraoperative data were recorded by the surgeons and all other in-hospital data were collected by local research nurses. At the end of the study period, participants completed a discrete choice experiment questionnaire.

Results

The randomised groups were well balanced at entry. Participants had been taking GORD medication for a median of 32 months; the mean age of participants was 46 years and 66% were men. Of 178 randomised to surgery, 111 (62%) actually had fundoplication. There was a mixture of clinical and personal reasons why some patients did not have surgery, sometimes related to long waiting times. A total or partial wrap procedure was performed, depending on surgeon preference. Complications were uncommon and there were no deaths associated with surgery.

By the equivalent of 12 months after surgery, 38% in the randomised surgical group (14% amongst those who had surgery) were taking reflux medication compared with 90% in the randomised

medical group. There were substantial differences [one-third to one-half standard deviation (SD)] favouring the randomised surgical group across the health status measures, the size depending on assumptions about the proportion that actually had fundoplication. These differences were the same or somewhat smaller than differences observed at 3 months. The lower the REFLUX score the worse the symptoms at trial entry and the larger the benefit observed after surgery.

The preference surgical group had the lowest REFLUX scores at baseline. These scores improved substantially after surgery and by 12 months they were better than those in the preference medical group. The BMQ/BSQ and discrete choice experiment did distinguish the preference groups from each other and from the randomised groups. The latter indicated that the risk of serious complications was the most important single attribute of a treatment option.

A within-trial cost-effectiveness analysis suggested that the surgery policy was more costly (mean £2049) but also more effective [+0.088 quality-adjusted life-years (QALYs)]. The estimated incremental cost per QALY was £19,000–£23,000, with a probability between 46% (when 62% received surgery) and 19% (when all received surgery) of cost-effectiveness at a threshold of £20,000 per QALY. Modelling plausible longer-term scenarios (such as lifetime benefit after surgery) indicated a greater likelihood (74%) of cost-effectiveness at a threshold of £20,000, but applying a range of alternative scenarios indicated wide uncertainty. The expected value of perfect information was greatest for longer-term quality of life and proportions of surgical patients requiring medication.

Conclusions

Amongst patients requiring long-term medication to control symptoms of GORD, surgical management significantly increases general and reflux-specific health-related quality of life measures, at least up to 12 months after surgery. Complications of surgery were rare. A surgical policy is, however, more costly than continued medical management. At a threshold of £20,000 per QALY it may well be cost-effective, especially when putative longer-term benefits are taken into account, but this is uncertain.

Implications for health care

Extending the use of laparoscopic fundoplication to people whose GORD symptoms require long-term medication would provide health gain. However, it is more costly and so judgements are required about cost-effectiveness. The more troublesome the symptoms, the greater the potential benefit from surgery.

Recommendations for research

Uncertainty about cost-effectiveness would be greatly reduced by more reliable information about relative longer-term costs and benefits of surgical and medical policies. This could be through extended follow-up of the REFLUX trial cohorts or of other cohorts of fundoplication patients.

Trial registration

This trial is registered as ISRCTN15517081.

Publication

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NIHR Health Technology Assessment Programme

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