One-stage Soave pull-through for Hirschsprung's disease: a comparison of the transanal and open approaches

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
One-stage Soave pull-through for Hirschsprung's disease in children under 3 years of age.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients, under 3 years of age, undergoing Soave pull-through for Hirschsprung's disease.

Setting
Hospital. The economic study was set in the USA.

Dates to which data relate
No dates were given for the effectiveness, resource use, or cost data (which were collected during a 7-year period).

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was undertaken retrospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
Patients were subjected to OS (n=13), LVS (n=9), or TAS (n=15). Patients were excluded if they had total colon disease or had undergone a previous colostomy. No power calculations were reported.

Study design
This was a retrospective cohort study carried out at a single centre. No details were given about the length of the follow-up period, but it appears to have been until discharge.

Analysis of effectiveness
The primary health outcomes included intraoperative and postoperative complications, operating time, and need for additional surgical procedures. At analysis, groups were shown to be comparable in terms of age, gender, weight at the time of pull-through, and level of the transition zone.

**Effectiveness results**
Operating time and intraoperative blood loss were similar across groups. Intraoperative complications were limited to an urethral mucosal injury from the Foley catheter in one child undergoing an OS procedure. There was no difference between groups with respect to postoperative enterocolitis, wound infection, perianal excoriation, stricture, or narrowing at the muscular cuff. Repeat surgery was necessary for 4 OS patients and 3 TAS patients. Hospital stay was significantly longer in the OS group than the LVS and TAS groups, (p<0.05).

**Clinical conclusions**
The one-stage Soave procedure using a transanal technique is associated with a similar rate of postoperative complications, a shorter hospital stay, and less need for narcotic analgesics.

**Measure of benefits used in the economic analysis**
No summary measure of benefit was derived and as such, a cost-consequences analysis was conducted.

**Direct costs**
Direct costs were not discounted due to the short time horizon of the study (less than 1 year). Quantities and costs were not reported separately. Direct costs related to the costs of hospital stay, operating room time, and use of laparoscopy equipment. The quantity/cost boundary adopted was that of the hospital. The estimation of quantities and costs was based on actual data. Costs and quantities were collected from hospital records. The price year was not reported.

**Statistical analysis of costs**
Non-parametric statistical tests were used to analyse costs. A p value less than 0.05 was considered significant.

**Indirect Costs**
Indirect costs were not included.

**Currency**
US dollars ($).

**Sensitivity analysis**
No sensitivity analysis was reported.

**Estimated benefits used in the economic analysis**
Not applicable.

**Cost results**
Total costs were $6,900 in the OS group (3,900 - 25,700), $4,800 in the LVS group (3,800 - 11,200), and $4,400 in the TAS group (3,400 - 12,700).

**Synthesis of costs and benefits**
Authors’ conclusions
The transanal pull-through is associated with a significantly shorter hospital stay and lower cost than the open approach, without an increased risk of complications. Because there is no intraabdominal dissection there is probably a lower incidence of adhesive bowel obstruction. Routine laparoscopic visualisation or minilaparotomy is not necessary but should be used in children who are at higher risk for long segment disease.

CRD COMMENTARY - Selection of comparators
A justification was given for the comparator used namely traditional treatment. You, as a user of the database, should decide if these health technologies are relevant to your setting.

Validity of estimate of measure of benefit
The analysis was based on a retrospective observational study, and, as such, is prone to biases. The study sample was very small and might not have provided sufficient power to the study. Patient groups were shown to be comparable at analysis. The authors did not derive a summary measure of health benefit and the analysis was therefore a cost-consequences design.

Validity of estimate of costs
Insufficient details of the methods of cost estimation were given. The price year was not given, quantities and costs were not reported separately, no sensitivity analyses were reported on quantities or costs, and charges were used to proxy costs. Cost results, therefore, are of limited transferability to other settings and countries.

Other issues
The authors did not make appropriate comparisons of their findings with those from other studies and did not address the issue of generalisability to other settings. The authors did not report the time period during which data were collected and did not compare the transanal approach to the various laparoscopic procedures that are becoming increasingly popular.

Implications of the study
The authors suggest that the transanal pull-through is associated with a significantly shorter hospital stay and lower cost than the open approach, without an increased risk of complications. Routine laparoscopic visualisation or minilaparotomy is not necessary but should be used in children who are at higher risk for long segment disease. However, these conclusions are based on a study that has a number of limitations. Further research, based on sound methodology, is required.

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