Ventajas de la cirugía torácica videoasistida en el tratamiento del neumotorax espontáneo
[Advantages of video assisted thoracic surgery in the treatment of spontaneous pneumothorax]

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
The use of video-assisted thoracoscopy (VATS) and insertion of a chest tube (ICT) for the treatment of spontaneous pneumothorax (SP). The interventions were accurately described in the paper.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients suffering from SP. Further inclusion and exclusion criteria were not reported.

Setting
The setting was an institution of thoracic diseases. The economic study was carried out at the Instituto de Enfermedades Torácicas, Sanatorio Modelo Quilmes in Quilmes, Province of Buenos Aires, Argentina.

Dates to which data relate
The effectiveness and resource use data were collected from January 1994 to December 1998. No price year was reported.

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

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

Study sample
A sample of 40 patients presenting at the study centre between January 1994 and December 1998 was included in the analysis. The mean age was 39 years (range: 17 - 79), 72% were men, and 54% were smokers. The patients were randomly assigned to undergo ICT (15 patients) or VATS (25 patients). No patient was excluded from the initial study sample. Power calculations to determine the sample size were not conducted.
Study design
This was a randomised controlled trial, which was carried out in a single centre (the Instituto de Enfermedades Torúricas of the Sanatorio Modelo Quilmes in the Province of Buenos Aires). The method of randomisation was not reported. The longest follow-up was 120 days. No loss to follow-up was reported.

Analysis of effectiveness
The basis for the clinical effectiveness was intention to treat. The primary health outcomes assessed were the length of hospitalisation, the use of analgesic drugs, and postoperative complications. The comparability of the study groups was not reported.

Effectiveness results
The length of hospitalisation was 7.5 days (range: 4 - 15) in the ICT group and 5.3 days (range: 2 - 7) in the VATS group, (p<0.01).

The use of analgesic drugs was 76.8 (+/- 31) hours in the ICT group and 38.4 (+/- 13) hours in the VATS group, (p<0.05).

In terms of postoperative complications, 8 patients (53%) had recurrence of disease and 6 (40%) had a prolonged air leak in the ICT group. No patients presented with complications in the VATS group, (p<0.001).

Clinical conclusions
 Compared with ICT, the VATS intervention significantly reduced the length of hospitalisation, the overall use of analgesics, and postoperative complications.

Measure of benefits used in the economic analysis
No summary benefit measure was used. A cost-consequences analysis was therefore carried out.

Direct costs
The health service costs included in the analysis were for treatment and hospitalisation. The unit costs were not reported. The cost data were obtained from the institution in which the study was conducted. The cost/resource boundary was not stated. The quantities were estimated using actual data derived from the clinical trial. Discounting was irrelevant as the costs for each patient were incurred over less than two years. No price year was reported, although the costs referred to a 5-year period.

Statistical analysis of costs
No statistical analysis of the costs was performed.

Indirect Costs
No indirect costs were included.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was conducted.
Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
The per patient costs of treatment were $100 in the ITC group and $1,200 in the VATS group. The per patient costs of hospitalisation were $750 in the ITC group and $530 in the VATS group.

The total per patient costs were $850 in the ITC group and $1,730 in the VATS group.

Synthesis of costs and benefits
Irrelevant as a cost-consequences analysis was carried out.

Authors' conclusions
Video-assisted thoracoscopy (VATS) was more effective in reducing hospitalisation and the recurrence of disease in patients with spontaneous pneumothorax (SP), than the insertion of a chest tube (ICT). Although the initial treatment costs were higher in the VATS group, the authors noted that the higher recurrence rate observed in the ITC group would result in higher treatment costs, thus resulting in cost-savings in the VATS group. The authors also commented that the indirect costs, if assessed, would be lower in the VATS group due to shorter hospitalisation and reduced recurrence rate. This would further enhance the economic convenience of VATS.

CRD COMMENTARY - Selection of comparators
The justification for the choice of the comparator was not explicitly stated. VATS appears to represent a recently available procedure for the treatment of SP, while ITC represents the standard treatment for the disease. You should decide whether they are widely implemented interventions in your own setting.

Validity of estimate of measure of effectiveness
The internal validity of the analysis was enhanced by the use of a randomised controlled trial. However, the method of randomisation was not reported and the study groups were not shown to have been comparable at baseline. The demographics and clinical characteristics of the sample were reported. A further possible limitation was the small sample size and the lack of power calculations.

Validity of estimate of measure of benefit
The health outcomes were left disaggregated and no summary benefit measure was used. Thus, a cost-consequences analysis was conducted (see validity of effectiveness comments above).

Validity of estimate of costs
The perspective adopted in the analysis was not stated, although it presumably reflected that of the institution in which the study was conducted. The analysis only included the costs of treatment and hospitalisation. The unit costs were not reported and no statistical analysis was carried out. The price year was not given, although the costs were collected over a 5-year period. Discounting was not carried out as it appears to have been irrelevant. The authors noted that the inclusion of the indirect costs would have been of some importance.

Other issues
The authors did not compare their findings with those from other studies. The issue of the generalisability of the study results to other settings or countries was also not addressed. In addition, no sensitivity analyses were performed and the unit costs were not reported. Consequently, the external validity of the study is low. The study enrolled a sample of patients with SP, and this was reflected in the conclusions of the analysis.
Implications of the study
The authors suggest that VATS should be the treatment of choice for patients with SP. However, this conclusion should be regarded with some caution given the limitations of the analysis.

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