Comparison of the costs associated with medical and surgical treatment of obesity


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
Surgical and medical therapies for obesity. The surgical therapy consisted of Roux-en Y gastric bypass, while the medical treatment required four months of participation in weekly meetings and consumption of a very low-calorie diet (VLCD) for at least 12 weeks.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients suffering from obesity, who requested appointments for treatment.

Setting
Hospital. The economic study was carried out in Pennsylvania, USA.

Dates to which data relate
Effectiveness and resource use data were collected between 1 July 1984 and 30 June 1991. The price year used was not reported.

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

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

Study sample
Power calculations did not affect the determination of the sample size. The study focussed on 362 patients (out of 464 accepted for treatment from 540 who completed the initial evaluation) admitted for obesity treatment who completed one of the two treatments and who were monitored for at least 2 years. The surgical group consisted of 201 patients with an average (SD) BMI of 49.3 (0.6) kg/square metre and average (SD) age of 38.9 (0.6) years as against 161 patients with an average (SD) BMI of 41.2 (0.7) kg/square metre and average (SD) age of 42.7 (0.8) years in the medical group.
Study design
Cohort study, carried out in a single centre. The duration of follow-up of treatment cohorts was 7 years. The loss to follow-up rate was reported at each year of the study. Loss to follow-up at 5 years was more than 50% in both groups. At the 7 year follow-up, 21 patients (out of 62 in the study) returned for follow-up in the surgical treatment group, and 3 (out of 51 in the study) in the medical group. Patients could choose from both treatment options.

Analysis of effectiveness
The analysis of effectiveness was based on treatment completers only. The primary health outcome used in the analysis was success rate in terms of weight loss (the loss of at least one third of excess weight). The study groups were not comparable in terms of biopsychological characteristics.

Effectiveness results
Effectiveness results were assessed at 8 follow-up points for each cohort. After 5 years of follow up, the surgical treatment was successful in 89% of patients, and for the medical treatment, the success rate was 21%, (p<0.05). At the 7 year follow-up, 86% of patients were successful with the surgical treatment, but none with the medical.

Clinical conclusions
The authors noted that the surgical therapy was significantly more effective at producing weight loss than the medical therapy. Moreover, it was also more effective at maintaining long-term weight loss. The authors’ experience indicates that medical and surgical programmes attract different populations, because less than 2% of the study population changed programmes after their original selection.

Measure of benefits used in the economic analysis
The benefit measure was the success rate in terms of weight loss (the loss of at least one third of excess weight).

Direct costs
No discounting in the cost analysis was reported, even though it would have been applicable given that the cost analysis covered a period of at least 1.5 years (6 months for core treatment programme and 1-year maintenance phase). Quantities and costs were not reported separately. The cost boundary adopted was not explicitly specified. The cost analysis covered the following cost components: history and physical examination, psychological evaluation, laboratory evaluation, preoperative testing, weekly behaviour therapy, liquid protein, hospital charges, and other medical charges. The source of the cost and resource use data was the study institution. Charge data were used to estimate the true costs. The date to which the price data referred was not explicitly specified. The cost analysis did not cover the costs of surgical and medical complications, or costs of additional treatments of failures.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
After 5 years of follow up, the surgical treatment was successful in 89% of patients, whilst the success rate for the
medical treatment was 21%, (p<0.05).

**Cost results**
The average total cost of the medical treatment was $3,000, while that of the surgical treatment amounted to $24,000.

**Synthesis of costs and benefits**
The cost of each pound lost (as a measure of synthesis of costs and benefits) was presented graphically for each follow-up year of the study. It was reported that the "cost per pound lost for medical therapy exceeded the cost of surgical therapy in the sixth post-treatment year (both more than $250/pound)".

**Authors’ conclusions**
The authors concluded that "surgical treatment appears to be more cost-effective at producing and maintaining weight loss. It is imperative that long-term follow-up studies be funded to definitely establish this finding".

**CRD COMMENTARY - Selection of comparators**
The reason for the choice of the comparator is clear.

**Validity of estimate of measure of benefit**
The internal validity of the estimate of the benefit may have been weakened by the low level of comparability between the two groups of patients in the two programmes.

**Validity of estimate of costs**
Quantities were not reported separately from the costs, although adequate details of the methods of cost estimation were given. Charge data were used to estimate the true costs. Overall, the study lacked a prospective cost analysis.

**Other issues**
In view of the limitations in effectiveness and cost analyses, and the lack of sensitivity analysis, the results need to be treated with some caution.

**Source of funding**
None stated.

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