Evaluating the cost-effectiveness of new interventions in the management and treatment of obesity – lessons for good practice evaluations from the ROMEO Project

BACKGROUND

Economic evaluations are key for many decision making bodies such as the National Institute for health and Care Excellence (NICE). The Review of men and Obesity (ROMEO) study evaluated the quantitative, qualitative and economic considerations for the treatment of men with obesity. The results of an economic evaluation compare the differential costs between two treatment options, with the difference in outcomes. Outcomes are typically measured using life years gained (LYG) or Quality Adjusted Life Years (QALY) gained. Decision makers typically consider the incremental cost-effectiveness ratio (ICER) for decision making. If a new treatment can offer 1 QALY gain at a cost <£20,000, such an intervention would usually be deemed cost-effective and acceptable to decision makers. Figure 1 presents an illustration of the cost-effectiveness plane, which shows the range of potential cost and QALY outcomes from an economic evaluation.

Figure 1 Comparison of costs and QALYs on the cost-effectiveness plane

OBJECTIVES

To conduct a systematic review to assess the cost-effectiveness of alternative treatment options for obese and overweight men and to use the results to identify good research practices for future cost-effectiveness studies of male obesity.

METHODS

We searched seven databases to identify reports of relevant published and ongoing studies, as well as grey literature. A highly sensitive search strategy used subject headings and text word terms to identify reports on costs and weight loss strategies for the management of male obesity. No language restrictions were imposed, however the search was limited to studies published post 1990. Results from quality assessment (Phillips criteria) for economic modelling studies were used to describe key requirements for future economic evaluations in obesity management of men.

RESULTS

Five studies were included, three related to lifestyle interventions and two related to Orlistat. Only two studies reported cost per QALY gained (the gold standard measure of cost-effectiveness). No studies were conducted in the UK and none were exclusively related to a male group. Male results were derived from appropriate subgroup analyses within the studies. It was impossible to determine if data used in the models (e.g. weight loss data) were always male specific or rather an aggregate of data for both sexes applied to a sex specific subgroup. If the latter were the case, this would limit the model’s ability to detect differences across sex subgroups. It was not possible to conduct any statistical synthesis of the data due to heterogeneity in study design, population modelled, intervention delivered and comparison groups. Despite this, our results do indicate the potential for lifestyle interventions and Orlistat to be cost-effective. Further research is required to address the methodological limitations in a UK male specific context.

Table 1 Summary of meta-analysis results (patient level data)

<table>
<thead>
<tr>
<th>Study</th>
<th>Intervention</th>
<th>Comparison</th>
<th>Outcome measure</th>
<th>ICER range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segal</td>
<td>Behavioural modification</td>
<td>Std. Care</td>
<td>LYG</td>
<td>Dominant to £1k</td>
</tr>
<tr>
<td>Olsen</td>
<td>GP or dietician counselling</td>
<td>Std. Care</td>
<td>LYG</td>
<td>Dietician: £3k to £661k GP: £300 to £2,600</td>
</tr>
<tr>
<td>Galani</td>
<td>Lifestyle</td>
<td>Std. Care</td>
<td>QALY</td>
<td>Dominant to £974</td>
</tr>
<tr>
<td>Maetzell</td>
<td>Orlistat + standard treatment</td>
<td>Std. Care</td>
<td>LYG</td>
<td>£7k - £23k</td>
</tr>
<tr>
<td>Ianazzo</td>
<td>Orlistat + lifestyle</td>
<td>Lifestyle alone</td>
<td>QALY</td>
<td>£9k - £74k</td>
</tr>
</tbody>
</table>

Lifestyle interventions and Orlistat both have the potential to be cost-effective uses of healthcare resources, especially when targeted at those with greatest risk, for example patients with impaired glucose tolerance. However our study results should be interpreted in light of some of the methodological limitations in the papers. Figure 2 provides guidance for future analyses.

Figure 2 Key requirements for future analyses

CONCLUSIONS

There is some evidence that lifestyle interventions and Orlistat may be cost-effective treatments for overweight and obese men, however there is insufficient data to draw strong conclusions as no studies were UK based and sex-specific. Studies were subject to methodological limitations, which should be used to guide future research priorities in this area.

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