

Modelling the cost-effectiveness of orlistat as a treatment for obesity in primary care

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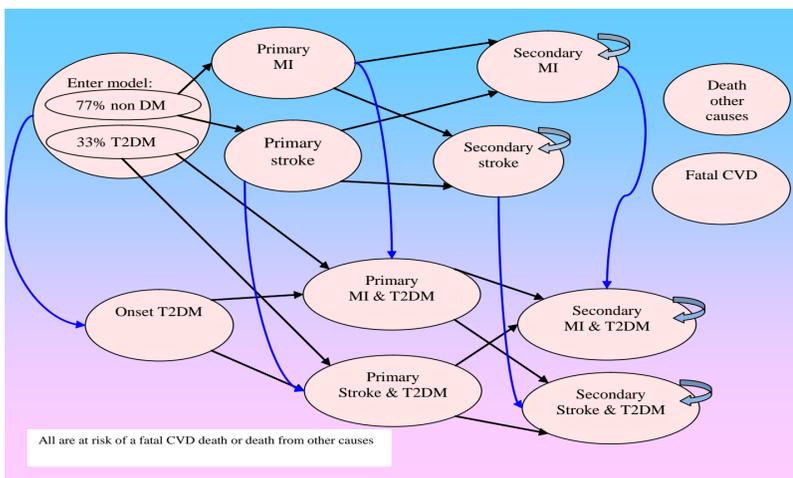
OBJECTIVES

Obesity represents a considerable and increasing health problem. The objective of this research was to assess the clinical and cost-effectiveness of orlistat in overweight and obese patients in primary care in the UK

METHODS

A cohort simulation model was built in Simul8 to explore the potential benefits of orlistat compared with standard care (Figure 1). The model used a lifetime horizon to estimate the incremental cost per quality adjusted life year (QALY) gained. Clinical effectiveness was modelled using the results of a mixed treatment comparison. Longitudinal analyses of the General Practitioners Registry Database (n=100,000) were used to derive BMI related estimates for times to death, primary myocardial infarction or stroke, onset of type 2 diabetes (T2DM), and to estimate the natural history of body mass index (BMI) in people who are obese.

Figure 1 Simulation model



Annual probabilities of subsequent cardiovascular events were estimated using data from the Nottingham Heart Attack register and South London Stroke register. Health related quality of life values were modelled using a relationship between BMI and EQ-5D data controlling for age and co-morbidities. Current event and post-event health states were used to incorporate changes in health related quality of life, cardiovascular risk and costs.

RESULTS

Deterministic analysis gave a cost per QALY gained (versus placebo) of £1,655. Sensitivity analysis was conducted to test the robustness of the results to changes in key parameter values. The baseline BMI was the most sensitive parameter (Figure 2) due to the strong correlation of BMI and the risk of CV events and T2DM.

Figure 2 Tornado diagram

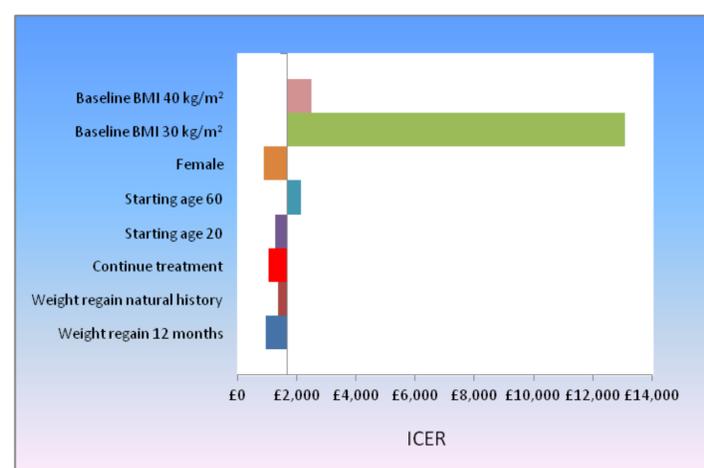


Table 1 Average costs and QALYs from the deterministic analysis

Intervention	Costs		QALYs		Cost per QALY
	undiscounted	discounted	undiscounted	discounted	
placebo	£5,286	£2,806	25.123	15.128	
orlistat	£5,547	£3,097	25.468	15.303	£1,665

CONCLUSIONS

Orlistat is a cost-effective treatment to aid weight reduction in primary care when using a threshold or £20,000 per QALY.

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