Orlistat and sibutramine beyond weight loss

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CRD summary
This review aimed to assess the effects of orlistat and sibutramine on blood lipids. It concluded that orlistat, but not sibutramine, determined a significant reduction in total cholesterol independent of the weight loss itself. Important information on the methods was missing from the review, so it was impossible to determine whether the conclusions were reliable.

Authors' objectives
To assess the effects of orlistat and sibutramine on blood lipids independent of weight loss.

Searching
MEDLINE was searched from inception to the end of May 2005 for relevant English-language articles. Search terms were reported. The reference lists of identified trials and review articles were searched to identify further relevant evidence.

Study selection
Randomised, double-blind, placebo-controlled trials of six to 12 months duration evaluating the effectiveness of orlistat (120 mg three times a day) or sibutramine (10, 15 or 20 mg/day) for weight loss in overweight or obese participants were eligible for inclusion in the review. Eligible studies had to report body weight, total cholesterol, LDL (low-density lipoprotein) and HDL (high-density lipoprotein) cholesterol and serum triglycerides as outcomes.

All selected studies included a hypocaloric diet or nutrition advice in both treatment and control arms. Other co-interventions included encouragement of increased physical activity, dietary counselling, physical activity diaries and self-help weight control educational packages.

The authors stated neither how the papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
The validity of individual randomised controlled trials was assessed using the Jadad criteria. The authors did not state how the validity assessment was performed.

Data extraction
The authors stated neither how the data were extracted for the review nor how many reviewers performed the extraction.

Methods of synthesis
Where deemed clinically appropriate, percentage change in mean weight loss and serum lipid concentrations were pooled as continuous variables. A multiple linear regression model was used to determine the impact of treatment on serum lipid concentrations, independent of weight loss.

Results of the review
Fifteen randomised controlled trials evaluating orlistat (n=10,995) and 10 randomised controlled trials (n=1,213) evaluating sibutramine were included in the review. Trials scored between 3 and 5 points on the Jadad validity assessment criteria.

Orlistat was associated with a significant reduction of total cholesterol and triglycerides relative to placebo. Mean reduction in total cholesterol was significantly correlated with mean weight loss (p<0.05). After adjusting for weight loss, mean reduction in total cholesterol remained significantly correlated with orlistat treatment (B = -2.81, standard deviation 1.28; p<0.05)
After adjustment for weight loss, sibutramine treatment was not significantly correlated with total or high-density lipoprotein cholesterol or triglycerides.

**Authors’ conclusions**

Orlistat and sibutramine were effective in promoting significant weight loss relative to placebo. Orlistat was also related to a significant reduction in total cholesterol independent of the weight loss.

**CRD commentary**

The review was based on a question that was defined clearly in terms of participants, interventions, comparators, outcomes and study designs of interest. Only one electronic database was searched, so relevant studies may have been missed. The database search was supplemented with examination of references, but restricting the search to published studies in the English language could have introduced language or publication bias. Validity of included studies was assessed according to established criteria, but the results of the assessment were not taken into account in the synthesis. It was unclear whether attempts were made to minimise the potential for errors and bias in this or any other review processes. Very little information was provided on the statistical methods used to pool studies and on how many studies were pooled. Since important information on the methods of the review was not reported, it was impossible to determine whether the conclusions are reliable.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that the cholesterol lowering effect of orlistat, independent of weight loss, needed to be further investigated using randomised controlled trails, particularly in non-obese patients with hypercholesterolaemia.

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