

006. Cardiovascular Risk Reduction Associated with Pharmacological Weight Loss Therapy: A Meta-Analysis

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Purpose

Obesity is a growing pandemic that is associated with multiple cardiovascular disease (CVD) risk factors such as hypertension, diabetes mellitus, dyslipidemia and obstructive sleep apnea. With the rise of the pandemic of obesity, nearly two thirds of Americans are either obese or overweight, and there has been an increase in the use of pharmacological therapy for the disease. While these therapies for weight loss have shown benefit in weight reduction, the clinical impact these medical therapies have on overall CVD outcomes has yet to be determined. We aimed to assess the effect of pharmacological agents used for weight reduction on CVD risk and all-cause mortality.

Methods

We conducted a systematic meta-analysis of peer-reviewed literature that evaluated the impact of anti-obesity drugs on CVD outcomes. Key words used included: "orlistat", "lorcaserin", "phentermine/topiramate" or "naltrexone/bupropione" and "cardiovascular outcomes" among others. We reviewed 791 articles, only 47 studies were randomized controlled trials and only 7 studies fulfilled all the inclusion criteria including, quantitative data on CVD risk factors such as, Hemoglobin A1C (A1C), changes in body mass index (BMI), blood pressure and CVD morbidity and mortality. Data was retrieved from these studies and evaluated with comprehensive meta-analysis software to assess pooled effects for medical management versus placebo.

Results

There were a total of 7 studies included in the final analysis, this included a total of 18,598 subjects, of which 8,685 were in the intervention (INT) group and 9,913 in the control (CTRL) group. For all cause mortality, there were 45 events in the INT and 55 in the CTRL groups, suggesting no significant difference between the two groups (OR: 0.843, 95%CI: 0.571-1.244, Z: -0.860, P: 0.390). For CVD mortality, there were 17 events in the INT and 36 events in the CTRL groups suggesting a significant mortality benefit in the INT group (OR:0.496, 95% CI: 0.282-0.873, Z: -2.433, P: 0.015). There was a significant absolute reduction in A1C in the INT group (Hg: -0.238, 95%CI: -0.291 - -0.186, Z: -8.937, P< 0.001). The percentage weight reduction was significantly higher for the INT group compared to the CTRL group (Hg: -0.431, 95%CI: -0.477 - -0.385, Z: -18.472, P< 0.001) and the blood pressure reduction was higher for the INT group compared to the CTRL group. (Hg: -0.052, 95%CI: -0.101- -0.003, Z: -2.086, P: 0.037). The heterogeneity observed for our meta-analysis is Q: 1.884, df: 6, P: 0.930.

Conclusions

Our study demonstrated the favorable and significant effect of pharmacological weight reduction strategies on weight loss, blood pressure reduction, A1C reduction, and CVD mortality. Given the limited efficacy of the lifestyle modification

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on sustained weight loss and the surgical risk and limited availability of bariatric surgical options, our data suggests pharmacological weight loss therapy may be a valuable treatment option to reduce CVD risk in obese patients. Further research should be performed to clarify the implications these therapies have on overall mortality and evaluate the mechanisms by which these medications reduce CVD risk factors and mortality.