Introduction

• Nearly 2/3 of Americans are either obese or overweight.
• Obesity is a disease associated with multiple cardiovascular disease (CVD) risk factors such as hypertension, diabetes, and dyslipidemia.
• There has been an increase in the use of pharmacological therapy for obesity.
• Though the pharmacological therapies 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.
• Key words used included: “orlistat”, “lorcaserin”, “phentermine/topiramate” or “naltrexone/bupropion” and “cardiovascular outcomes” among others.
• Inclusion Criteria: Quantitative data on cardiovascular risk factors such as, Hemoglobin A1C (A1C), changes in body mass index (BMI), blood pressure and CVD morbidity and mortality.
• We reviewed 791 articles, only 47 studies were randomized controlled trials and only 7 studies fulfilled all the inclusion criteria. (Figure 1)
• 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 18,598 subjects, of which 8,685 were in the intervention (INT) group and 9,913 in the control (CTRL) group. (Table 1)

<table>
<thead>
<tr>
<th>Patient Demographic Data</th>
<th>Control ± SD</th>
<th>Intervention ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Patients</td>
<td>9,913</td>
<td>8,685</td>
</tr>
<tr>
<td>Age (yr)</td>
<td>55.01</td>
<td>53.73</td>
</tr>
<tr>
<td>Percent Female (%)</td>
<td>62.64</td>
<td>65.83</td>
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<tr>
<td>Mean Weight (kg)</td>
<td>104.29 ± 17.50</td>
<td>103.27 ± 17.33</td>
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<tr>
<td>Systolic Blood Pressure (mmHg)</td>
<td>126.91 ± 12.81</td>
<td>126.70 ± 12.91</td>
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<tr>
<td>Diastolic Blood Pressure (mmHg)</td>
<td>77.67 ± 8.75</td>
<td>77.80 ± 8.73</td>
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<tr>
<td>Hemoglobin A1C (%)</td>
<td>5.85 ± 0.599</td>
<td>5.85 ± 0.593</td>
</tr>
</tbody>
</table>

• There were 45 all cause mortality events in the INT and 55 in the CTRL groups. (OR: 0.843, 95%CI: 0.571–1.244, Z: -0.860, P: 0.390). (Figure 2)

Conclusions

• Our study demonstrated the significant effect of pharmacological weight reduction on weight loss, blood pressure, glycemic control and CVD mortality.
• Weight loss medications likely impact CVD mortality and risk factors via weight reduction and not direct medication effect.
• Given the limited efficacy of lifestyle modification on sustained weight loss and the surgical risk and limited availability of bariatric surgery, pharmacological weight loss 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.

References