These findings confirm our impression that the treatment of thyrotoxicosis is associated with excess weight gain. This weight gain would not appear to be purely the regaining of previously lost weight during the untreated hyperthyroid state. It is probably related to normalization of the previously high metabolic rate without concomitant reduction in appetite; thus as energy expenditure is reduced with restoration of the euthyroid state, the high calorie intake continues and weight increases.\(^2\)

The degree of weight gain was particularly irksome to the overweight/obese group, as they had lost the most weight (mean 2.61 kg, range 3.8 to 13 kg) prior to diagnosis and treatment, and were pleased to do so. Patients may find this aspect of treatment distressing and consider it a direct side-effect of the anti-thyroid therapy. This may lead to disillusionment and altered compliance with treatment. We consider weight change to be an important yet neglected area in hyperthyroidism and its management. It may be that weight gain in restoring the euthyroid state is unavoidable, but we suggest it deserves more attention, and that early warning and dietetic advice should be an integral part of the initial treatment and subsequent follow-up of this common and important condition.

\(\text{Table 1. Mean (range) weight change of patients treated for thyrotoxicosis}\)

<table>
<thead>
<tr>
<th></th>
<th>(n)</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>Group D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal (19–25)</td>
<td>46</td>
<td>-1.98 (1.3 to -9.6)</td>
<td>4.72 (-3.0 to 17.6)</td>
<td>5.95 (-3.0 to 15.6)</td>
<td>4.38 (0.1 to 19.6)</td>
</tr>
<tr>
<td>Overweight/obese (&gt;26)</td>
<td>19</td>
<td>-2.61 (3.8 to -13.0)</td>
<td>9.21 (-2.0 to 19.7)</td>
<td>7.56 (0.0 to 23.8)</td>
<td>7.53 (-3.0 to 23.8)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>65</td>
<td>-2.37 (3.8 to -13.0)</td>
<td>9.76 (-3.0 to 19.7)</td>
<td>7.20 (-3.0 to 23.8)</td>
<td>5.34 (-3.0 to 23.8)</td>
</tr>
<tr>
<td><strong>Treatment type</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbimazole alone</td>
<td>25</td>
<td>7.52 (-3.0 to 17.5)</td>
<td>5.07 (0.1 to 17.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgery</td>
<td>11</td>
<td>8.66 (-1.5 to 23.8)</td>
<td>4.66 (-3.0 to 13.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiiodine</td>
<td>29</td>
<td>6.72 (0.0 to 15.8)</td>
<td>5.87 (1.2 to 23.8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Groups: A, premorbid to hyperthyroid; B, hyperthyroid to treated euthyroid; C, hyperthyroid to treated euthyroid +6 months; D, premorbid to treated euthyroid +6 months.

References


Acute myocardial infarction following bupropion (Zyban)

Sir,

Bupropion (Zyban) was licensed by the Medicines Control Agency in the UK in June 2000 as an aid to smoking cessation. Subsequent reports of 18 deaths raised questions about its safety.\(^1\) We describe a patient who presented with acute myocardial infarction, whose symptoms of chest pain can be dated to commencing bupropion 2 weeks previously.

A 43-year-old insurance clerk presented with classical symptoms of acute inferoposterolateral myocardial infarction. Thrombolytic therapy was administered with resolution of ST segments. Troponin I was >500 iU/l, and he completed 12 min of the modified Bruce protocol and was discharged on secondary prevention therapy. Risk factors included a positive family history and cigarette smoking of 26 pack-years. He had no past medical history of note, was on no regular medication and took little regular exercise. Two weeks previously, he had commenced bupropion 150 mg in an attempt to stop smoking. Prior to this he had not experienced chest pain. The dose was increased as per the suggested dosing regimen, and 7 days later he stopped smoking. At 10 days, he developed episodes of central chest and arm pain and the following day discontinued bupropion. Three days later he presented with acute myocardial infarction.
Bupropion has been licensed as an adjunct to smoking cessation in the USA since 1998. Originally prescribed as an antidepressant, its antismoking properties are believed to be based on central dopaminergic properties and noradrenergic activity. The UK launch has stimulated public and media interest. Public concern has been heightened by reports of severe adverse reactions including seizures and deaths. Despite this high profile, the scientific literature contains only one prospective safety study in the treatment of depression\(^2\) and few detailed adverse event reports. US Public Health Service guidelines\(^3\) suggest that additional research into the relative efficacy and safety of this group of drugs is required. National guidelines\(^4\) make little reference to safety concerns.

Up to 30 April 2001, there were 238 reports of chest pain and 134 reports of chest tightness to the Committee on the Safety of Medicines among an estimated 390,000 patients receiving bupropion in the UK. Thirty-seven deaths have been attributed to underlying comorbidity. While associations between bupropion, fatalities and myocardial infarction may be coincidental, only by vigilance, comprehensive reporting and investigation of all such cases will causal relationships be detected. Severe coronary artery spasm has previously been described with bupropion and pseudoephedrine,\(^5\) supporting a plausible link with myocardial infarction.

The freedom to smoke comes at a price to society. While all attempts to reduce smoking rates are to be supported, maintaining public confidence in such therapies requires comprehensive and prospective demonstration of safety. As with nicotine replacement therapy, the public perception of safety is at least as important as its actual efficacy in ensuring that smoking cessation therapy is a public health success.

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References

1. BBC News Online 18 February 2001; http://news.bbc.co.uk/hi/english/health/newsid_1177000/1177137.stm