SUMMARY

Context: Radioiodine is an effective and safe treatment for hyperthyroidism but has been implicated as a risk factor for deterioration or new presentation of Graves’ ophthalmopathy (GO). Prophylactic glucocorticoids appear to prevent this effect.

Objective: The objective of this study was to document the course of GO after radioiodine (RI) therapy.

Design: The study was prospective and observational. Patients were assessed at baseline and after 2, 4, 6, and 12 months following RI therapy.

Setting: The study was conducted at a tertiary referral center.

Patients: Seventy-two patients with GO with minimally active eye disease participated in the study.

Intervention: A fixed dose of RI was administered. T4 was commenced 2 weeks later to prevent hypothyroidism.

Main outcome measures: Changes in activity and severity of GO were analysed.

Results: Exophthalmometer readings, the width of the palpebral aperture, diplopia score, and the clinical activity score improved significantly. By clinically significant criteria, the eye disease improved in four patients (transiently in three of the four), most likely attributable to the natural course of the disease. No patient’s eye deteriorated.

Conclusions: Radioiodine is not associated with deterioration of GO in patients with minimally active eye disease when post RI hypothyroidism is avoided.

COMMENT

When deciding to treat patients with hyperthyroidism due to Graves’ disease using radioiodine RI*, a classical concern is the fear of potential deterioration or new presentation of thyroid eye disease (thyroid-associated ophthalmopathy TAO). Many investigators propose to avoid RI* therapy in patients with moderately severe or severe TAO, or at least prevent the exacerbation of eye signs in such patients by the preventive administration of glucocorticoids concomitantly with RI*.

Another important factor implicated in the exacerbation of TAO is hypothyroidism consecutive to RI* treatment, which frequently remains unnoticed (and hence untreated) for several weeks - or even months - after RI* administration. The mechanism of TAO exacerbation in Graves’ disease patients treated with RI* is presumably mediated by changes in the titers of anti-TSH receptor antibodies (TRAb), which frequently increase after radioiodine therapy, due to an exaggerated
autoimmune response following the release of thyroid antigens. These antigens are believed to be shared antigens between the thyroid gland and orbital structures, such as fibroblasts, retro-orbital fat, etc. In the present study, the authors showed that there was no deterioration after RI* therapy (using a fixed dose of 405 MBq or 11 milli-Ci) in patients who had only minimally active TAO, confirming that systematic glucocorticoid administration was not required in such patients. When scrutinizing the ophthalmologic findings before and after RI* therapy, there was no change in proptosis, very little changes in palpebral aperture, an improvement in diplopia score, a reduction in soft tissue involvement, and a decrease in the clinical activity score. These changes occurred over the course of a 1-year period after RI* therapy, and are therefore most probably attributable to the natural course of TAO in hyperthyroid patients rendered euthyroid with treatment.

(Daniel Glinoer, MD; PhD)

See Table below for the main ophthalmological findings

<table>
<thead>
<tr>
<th>Time</th>
<th>CAS</th>
<th>Proptosis</th>
<th>Palpebral aperture</th>
<th>Soft tissue score</th>
<th>Diplopia score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.78 (1.10)</td>
<td>19.60 (2.61)</td>
<td>10.96 (1.65)</td>
<td>0.67 (0–2)</td>
<td>0.62 (0–3)</td>
</tr>
<tr>
<td>2</td>
<td>0.73 (1.20)</td>
<td>19.37 (2.50)</td>
<td>10.69 (1.58)</td>
<td>0.74 (0–1)</td>
<td>0.60 (0–3)</td>
</tr>
<tr>
<td>4</td>
<td>0.54 (0.91)</td>
<td>19.44 (2.6)</td>
<td>10.59 (1.65)</td>
<td>0.66 (0–2)</td>
<td>0.45 (0–3)</td>
</tr>
<tr>
<td>6</td>
<td>0.37 (0.82)</td>
<td>19.24 (2.81)</td>
<td>10.69 (1.52)</td>
<td>0.59 (0–2)</td>
<td>0.50 (0–3)</td>
</tr>
<tr>
<td>12</td>
<td>0.41 (0.84)</td>
<td>19.22 (2.81)</td>
<td>10.56 (1.73)</td>
<td>0.60 (0–2)</td>
<td>0.53 (0–3)</td>
</tr>
</tbody>
</table>

*See Table 2 for the main ophthalmological findings.