The efficacy of adjuvant radioactive iodine therapy for patients with recurrent differentiated thyroid cancer

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Introduction

We present a service evaluation assessing the therapeutic impact of adjuvant radioactive iodine therapy (RAI) as assessed by evidence of uptake on radioactive iodine imaging and the effect on serum thyroglobulin for patients with differentiated thyroid carcinoma (DTC) after local recurrence that had undergone surgical resection. This is a group of patients for whom the optimum treatment is not clear as there is no randomised trial evidence to guide treatment. The current ATA guidelines suggest considering RAI if residual iodine avid disease is expected1.

Methods

We retrospectively evaluated DTC patients treated with surgical resection for local disease recurrence. All patients had previously undergone total thyroidectomy and radioiodine remnant ablation (RRA).

We used clinical and histological data obtained during follow-up to assess the outcome of RAI and thyroglobulin response following treatment for local recurrence.

Table 1 – Baseline tumour characteristics

<table>
<thead>
<tr>
<th>Number of patients</th>
<th>308</th>
<th>Gender</th>
<th>180 Male</th>
<th>128 Female</th>
<th>TNM stage</th>
<th>28 T1</th>
<th>92 T2</th>
<th>190 T3</th>
<th>14 T4</th>
<th>N0</th>
<th>8</th>
<th>N1</th>
<th>26</th>
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Results

We evaluated 308 patients treated with 5.5Gbq of radioiodine from 2004 to 2017. 26 patients had undergone preceding surgical management of local recurrence and were eligible for this evaluation. Of the 26 patients, only 3 patients had evidence of uptake on RAI (1 had a reduction in TG and 2 had rising TG levels; one patient had further local recurrence and the other had distant metastases). The remaining 23 patients had no evidence of uptake on the RAI post ablation imaging. Nine of these patients had a demonstrated drop in serum thyroglobulin level, 9 had negative thyroglobulin at the time of treatment and at follow up and 3 could not be assessed (2 due to lack of subsequent thyroglobulin sample and 1 due to antibody interference with the assay).

Discussion

These findings indicate that there are a proportion of patients who have unmeasurable sTG after localised surgery may not require RAI. There were no patients who had a positive RRA in the absence of a measurable serum thyroglobulin.

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References