LOW/UNDetectable PRE-AblATION THyROGLOBULIN IN WELL-DIFFERENTIATED THYROID CANCER PATIENTS WITH POSITIVE I-131 WHOLE BODY SCANS – CAUSES AND CONSEQUENCES


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INTRODUCTION

In patients with well-differentiated thyroid cancer (DTC) low/undetectable thyroglobulin (TG) at time of remnant ablation usually reflects a complete previous surgery. However, in a small percentage (3.3–6.6%) it can represent false negative values.

OBJECTIVES

Evaluate the frequency of patients with low/undetectable TG at time of remnant ablation with loco-regional or distant lesions at post-ablative I-131 whole body scan (WBS) and the influence of TG levels in long-term outcome.

METHODS

- Retrospective analysis of all patients with DTC submitted to ablative I-131 treatment in our centre. Included: patients with a stimulated TG < 5ng/mL (measured at time of remnant ablation) and loco-regional or distant uptake at post-ablative I-131 WBS, performed 6-7 days after.
- Excluded: patients with TSH=30mIU/mL after thyroid hormone withdrawal or with a follow-up<6months.
- Statistical analysis: SPSS(21).

RESULTS

- Of 967 patients, 211 (21.8%) were included (178; 33).
- Ninety two (43.6%) presented anti-TG antibodies
- Only patients with negative anti-TG antibodies (n=119) were considered for analysis

Clinico-pathological characteristics

<table>
<thead>
<tr>
<th>TNM classification</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>No or Nx</th>
<th>N1a</th>
<th>N1b</th>
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<tbody>
<tr>
<td></td>
<td>93 (78.2%)</td>
<td>19 (16%)</td>
<td>1 (0.8%)</td>
<td>6 (5%)</td>
<td>111 (93.3%)</td>
<td>8 (6.7%)</td>
<td>0 (0%)</td>
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Recurrence risk

- Low (95 (79.8%))
- Intermediate (22 (18.5%))
- High (2 (1.7%))

TSH stimulation (THWrTSH)

| TSH stimulation | 87/32 (73.1%/26.9%) |

TSH (uIU/mL)

| TSH (uIU/mL) | 54.0 ± 40.6 |

Thyroglobulin (ng/mL)

| Thyroglobulin (ng/mL) | 1.2 ± 1.4 |

Thyroglobulin Classes

| Thyroglobulin Classes | 55 (46.2%) |

Lower TG levels if (at hystopathological analysis):

- Lymphocytic infiltrate (1.2 ± 1.4 vs. 1.5 ± 1.9ng/dL, p=0.05) *
- Abundant solid areas (1.2 ± 1.2 vs. 1.8 ± 1.6ng/dL, p=0.05) *

Follow-up time: 8 ± 4 years

- 17 (14.3%) patients with evidence of persistent/recurrent disease
  - 8 local
  - 9 distant

Treatment of persistent/recurrent disease

- Radioiodine therapy (82.4%, n=14)
- Surgery (17.6%, n=3)

- Disease-free survival inversely correlated with TG at ablation time (rho=0.597, p<0.01**)

- Disease-free survival significantly higher in patients with undetectable TG levels at ablation time (p<0.05)*

CONCLUSION

A fifth of DTC patients presented low/undetectable TG at time of remnant ablation with uptake (loco-regional or distant) at post-ablative I-131 WBS. In about half this was justified by anti-TG antibodies. In the others, may be related to the presence of microscopic lesions or specific histopathological features.

In these patients, low/undetectable TG did not exclude risk of remnant recurrence, but seems related with disease-free survival. This study also highlights the importance of post-ablative I-131 WBS in the evaluation of these patients.