Biochemical and hormonal alterations in women who underwent total thyroidectomy.

Kakava K.1, Tournis S.2, Papadakis G.3, Karelis I.1, Stampoulopoulou P.1, Kassi E.4, Triantafillopoulos I.2, Karatzas T.5, Villiotou V.5, Dogkas N.6, Saros P.1, Tassopoulos G.1, Petridis N.1.

Head and Neck Surgery1, Endocrinology1 and Biochemistry2 Department of Metaxa Anticancer Hospital Piraeus, Greece. Laboratory of Research of the Musculoskeletal System (LRMS) of the School of Medicine, National and Kapodistrian University of Athens, Greece.2 Endocrinology Unit of Laiko General Hospital of Athens, Greece.4 2nd Propedeutic Surgical Department of National and Kapodistrian University of Athens, Laiko General Hospital of Athens, Greece.5

Introduction: Postsurgical hypoparathyroidism, (postHypoP), is a common complication of total thyroidectomy. We studied the variation of biochemical and hormonal parameters in patients who underwent total thyroidectomy.

Design: The study included 106 females of a mean age (±SD) 51.03 (±13.42) years who underwent total thyroidectomy for multinodular goiter.

- We estimated the value of 25(OH)vitD, PTH, CT, adjusted Ca, P, and alkaline phosphatase (Alp).
- In three different time points; preoperatively and in the 1st and 7th postoperative day.

Results: The patients were devided in groups, A and B, based on the presence of postHypoP.

- Totally, 67 patients who experienced postHypoP were included in group A and 39 of older age without postHypoP in group B.
- Patients in group A were younger than patients in group B (49.6±14.1 vs 53.3±11 years, p=0.031)
- The presence of parathyroid tissue in biopsy was significantly related to postHypoP (observed in 38.1% in group A vs 14.7% in group B, p=0.016)
- There were no statistical significant difference between the mean values of preoperative 25(OH)vitD, preoperative PTH and adjusted Ca (p=0.05)
- In the 1st postoperative day group A had lower mean value of adjusted Ca (8.29±0.43 vs 9.34±0.41 mg/dl, p=0.023). From the ROC curve, the best cut-off point of PTH in the 1st postoperative day that differentiated patients who developed postHypoP from those who did not was 13.45 pg/ml with sensitivity of 77% and specificity of 54%. (Area under the curve = 0.71, 95 CI=0.61-0.81, p<0.001).

Conclusion: In patients after total thyroidectomy a PTH value ≤13.4 pg/ml the 1st postoperative day and the presence of parathyroid tissue in biopsy are positive related to postHypoP.

References:

Table 1. Comparison of laboratory parameters before and after total thyroidectomy.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group A (n=67)</th>
<th>Group B (n=39)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT (pg/ml)</td>
<td>4.27±1.8</td>
<td>4.80±3.2</td>
<td></td>
</tr>
<tr>
<td>PTH (pg/ml)</td>
<td>2912±14.08</td>
<td>16.33±1.8</td>
<td></td>
</tr>
<tr>
<td>Ca (mg/dl)</td>
<td>9.51±0.39</td>
<td>8.62±0.56</td>
<td></td>
</tr>
<tr>
<td>P (mg/dl)</td>
<td>3.49±0.52</td>
<td>3.91±0.71</td>
<td></td>
</tr>
<tr>
<td>Creatinine (mg/dl)</td>
<td>0.69±0.09</td>
<td>0.68±0.10</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Comparison of laboratory parameters in patients with, (Group A), and without postHypoP, (Group B).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group A (n=67)</th>
<th>Group B (n=39)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT (pg/ml)</td>
<td>4.27±1.8</td>
<td>4.80±3.2</td>
<td></td>
</tr>
<tr>
<td>PTH (pg/ml)</td>
<td>2912±14.08</td>
<td>16.33±1.8</td>
<td></td>
</tr>
<tr>
<td>Ca (mg/dl)</td>
<td>9.51±0.39</td>
<td>8.62±0.56</td>
<td></td>
</tr>
<tr>
<td>P (mg/dl)</td>
<td>3.49±0.52</td>
<td>3.91±0.71</td>
<td></td>
</tr>
<tr>
<td>Creatinine (mg/dl)</td>
<td>0.69±0.09</td>
<td>0.68±0.10</td>
<td></td>
</tr>
</tbody>
</table>

References: