

Impact of Visualised Parathyroid Glands on Calcium Level after Thyroid Surgery

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Introduction. Parathyroid glands (PTG) strictly regulate calcium level through negative feedback. PTG are evaluated during surgery and visualized PTG number could have an association with one of the complications – hypocalcaemia (hCa).

Aim, Materials and Methods. The aim of the study is to detect association between the number of PTG and postoperative Ca level. Retrospective study was carried out in 2016 by describing and analysing Eurocrine data. A total of 114 patients, 110 (96.5%) woman and 4 (3.5%) men with mean age of 56.46 years, took part in the study. All patients had thyroid operation involving both lobes: 3 (2.6%) bilateral resection, 19 (16.7%) lobectomy and resection of contralateral lobe and 92 (80.7%) thyroidectomy. CaDelta (CaDelta = calcium serum level after operation (CaPost) – calcium serum level before operation) was used to evaluate changes of calcium serum level. CaPost below 2.1 mmol/L was considered as hypocalcaemia. Descriptive statistics and Spearman's correlation test were performed using Microsoft Excel and IBM SPSS Statistics program. Spearman's correlation test results were considered significant if $p < 0.05$.

Results. Mean PTG number observed in operation was 2.8, CaPost 2.06 mmol/L and CaDelta -0.27 mmol/L. Mean CaPost and CaDelta in case of verified 1, 2, 3 and 4 PTG was 2.03, 2.07, 2.06, 2.03 mmol/L and -0.3, -0.28, -0.26, -0.29 mmol/L, respectively. Spearman test for correlation between PTG number and CaPost was -0.167 ($p = 0.038$) and between PTG number and CaDelta -0.052 ($p = 0.292$). hCa was observed in 62 (54.39%) cases, where mean PTG amount observed was 2.98, CaPost 1.95 mmol/L and CaDelta -0.36 mmol/L. Mean CaPost and CaDelta in case of verified 1, 2, 3 and 4 PTG in this group was 1.79, 1.91, 1.98, 1.96 mmol/L and -0.5, -0.42, -0.32, -0.36 mmol/L, respectively. Spearman test for correlation between PTG number and CaPost was 0.092 ($p = 0.238$) and between PTG number and CaDelta 0.091 ($p = 0.242$). In case of normal calcium level mean PTG amount observed was 2.58, CaPost 2.18 mmol/L and CaDelta -0.17 mmol/L. Mean CaPost and CaDelta in case of verified 1, 2, 3 and 4 PTG number was 2.16, 2.18, 2.18, 2.24 mmol/L and -0.2, -0.18, -0.19, -0.08 mmol/L, respectively. Spearman test for correlation between PTG number and CaPost was 0.103 ($p = 0.233$) and between PTG number and CaDelta 0.120 ($p = 0.198$).

Conclusions. Visualized PTG number has weak negative correlation with CaPost – greater number of visualized PTG number was associated with lower CaPost and increased postoperative hCa risk. Visualized PTG number has no significant correlation with CaDelta; does not influence calcium serum level in case of thyroid operation.