

papillary thyroid carcinomas (TCPTC); and 21 follicular thyroid carcinomas (FTC). All patients were managed according to a standard protocol based on current guidelines and followed-up for 116.9±70.8 months. VEGFA protein expression did not differentiate benign from malignant thyroid nodules. However, VEGFA was more frequently expressed in the less differentiated thyroid tissues. In fact, 95.8% of the FTC had positive expression. On the contrary, the intensity of this protein expression was progressively lower according to the process of cellular dedifferentiation (Goiter: 21.4%; FA: 16.3%; PTC: 8.7% and FTC: 0.0%; $\chi^2 = 0.031$). There was no difference in VEGFR2 expression between malignant and benign nodules ($\chi^2 = 0.108$), but this protein showed more intense expression in tissues that also presented Hürthle cells ($\chi^2 < 0.0001$). We were not able to find any correlation, neither of VEGFA nor with VEGFR2 expression, and any other feature of aggressiveness, including invasion, metastasis, lymph node metastasis, and distant metastasis. We conclude that VEGFA and VEGFR2 expression may help identify less differentiated tumors and the analysis of a larger cohort may prove the clinical utility of these markers.

Thyroid

BENIGN THYROID DISEASE AND HEALTH DISPARITIES IN THYROID I

Characteristics of Hypothyroid Patients Achieving Long Term Euthyroidism on Levothyroxine Treatment

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Characteristics of Hypothyroid Patients Achieving Long Term Euthyroidism on Levothyroxine Treatment
Background

Studies have shown that hypothyroid patients treated with Levothyroxine replacement therapy often experience fluctuations in TSH levels, while others remain well controlled over time.

Aim

To assess the association between pre-treatment TSH and other biochemical and clinical characteristics and long-term maintenance of normal TSH under Levothyroxine treatment.

Methods

This is a retrospective nested case-control study. Study population included patients above age 18 insured by Clalit Health Service (CHS) in the South of Israel between the years 2002-2017, diagnosed with hypothyroidism (ICD 9 code 244.9) and who had at least one TSH measurement before initiating levothyroxine therapy, purchased

this medication for at least 5 consecutive years with one annual TSH measurement while on treatment. Patients with surgical, post iodine ablation or congenital hypothyroidism were excluded. Patients with a TSH level within the normal range for 5 consecutive years were defined as cases while the others served as controls. Demographic, laboratory, pregnancy status and pharmacy purchase were extracted from the computerized medical records of CHS and compared between the groups.

Results

Out of 5472 patients included in the study, 644 had a normal TSH for 5 consecutive years (11.8%, cases). Mean age at first levothyroxine purchase was 55.8±13.7 in cases and 54.10±16.2 in controls (p=0.003) and females comprised 84.8% and 81.4% respectively (p=0.035). Mean pretreatment TSH was 5.15±9.6 in cases and 10.02±29 in controls (p<0.001). Thyroid autoantibodies (anti TPO or anti thyroglobulin) were available in 40.8% and 44.8% of cases and controls respectively (P=0.63) and were positive in 36.5% and 56.7% (p<0.01). Subclinical hypothyroidism was diagnosed in 44.4% of cases and 54.6% of controls with prior to treatment. The odds ratio (OR) for having normal TSH for at least 5 consecutive years, using multivariable logistic regression was 0.99 for pretreatment mean TSH (p=0.89), 0.48 for positive thyroid antibodies (p<0.001), 0.72 for pretreatment diagnosis of subclinical hypothyroidism (p=0.032), 0.69 for use of iron supplements and 1.01 for age at first levothyroxine purchase (per year, p=0.02).

Conclusions

In our study population of adults with hypothyroidism treated with levothyroxine, only 11.8% were controlled for at least 5 consecutive years. Positive thyroid autoantibodies, pretreatment subclinical hypothyroidism and use of iron supplements lowered probability of long term TSH normalization, while age was associated with the increased rate. Further research should test whether TSH control for 5 consecutive years signals simply “good control”, or perhaps the possibility of transient forms of hypothyroidism for which treatment discontinuation is recommended.

Diabetes Mellitus and Glucose Metabolism

METABOLIC INTERACTIONS IN DIABETES

Dynamic and Regional Variation of Pancreatic Innervation in Diabetes

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Background: The pancreas is a highly heterogeneous organ, with regional anatomical, developmental and functional differences. The endocrine pancreas is densely innervated, and neural signals play a significant role in glucose regulation by modulating pancreatic hormone release. However, relatively little is known about the anatomical relationships between islets and nerves across the whole pancreas. Since thin filamentous structures, such as nerves, are difficult to quantify and trace over