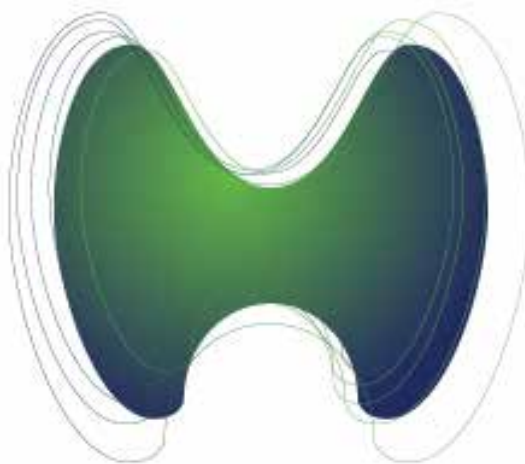


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**XVI LATIN
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56613 EVALUATION OF THE EFFECT OF SUPPRESSIVE DOSE OF LEVOTHYROXINE ON BONE MASS IN CHILDREN, ADOLESCENTS AND YOUNG ADULTS WITH DIFFERENTIATED THYROID CARCINOMA

André Borsatto Zanella¹, Rafael Selbach Scheffel¹, José Miguel Dora¹, Tayane Muniz Figuera¹, Poli Mara Spritzer¹, Ana Luiza Silva Maia¹,

¹ Universidade Federal do Rio Grande do Sul (UFRGS)

Introduction: Levothyroxine (LT4) suppressive therapy (sLT4) is a cornerstone of treatment for children and adolescents with differentiated thyroid carcinoma (DTC). Nevertheless, the impact of suprphysiological doses of thyroid hormone in young patients before peak bone mass has been poorly studied. **Objective:** To evaluate the effect of TSH suppression on bone mass in a population of children, adolescents and young adults with DTC. **Methods:** Patients with diagnosis of DTC on long-term sLT4 who initiated this therapy before 25 years of age were selected and compared to thyroidectomized patients under LT4 physiological replacement matched by sex, age and body mass index (BMI). The clinical variables were extracted from a Thyroid Outpatient Clinic cohort database. All patients were 19 years of age or older and underwent a dual-energy X-ray absorptiometry (DXA) to determine the bone mineral density (BMD) at lumbar and hip. **Results:** Thirty patients (96.6% papillary subtype, 76.7% females) under sLT4 therapy and 11 thyroidectomized individuals under LT4 replacement therapy (8 patients with medullary thyroid carcinoma and 3 with multinodular goiter; 72.7% of females) were included. There were no differences on age (27.8 ± 5.7 vs. 28.4 ± 7.1 years, $P = 0.8$), female/male ratio (8/3 vs. 8/3, $P = 1.0$) and BMI (24.0 ± 4.3 vs. 26.5 ± 3.4 kg/m², $P = 0.1$) between the groups. The dose of levothyroxine per kilogram (kg) of body weight was 2.4 ± 0.7 mcg/kg and 1.8 ± 0.3 mcg/kg in sLT4 and LT4 groups, respectively ($P = 0.01$). The median TSH was 0.20 (P25-P75 0.03-1.70) mUI/L in the sLT4 group and 2.90 (P25-P75 0.64-9.40) mUI/L in the patients on LT4 replacement therapy ($P < 0.01$). The median time for patients on sLT4 was 6.0 (P25-P75 3.0-9.5) years, while the other group had a median time of 6.0 (P25-P75 2.0-7.0) years on LT4 therapy. There were no differences in BMD in all the spots evaluated by DXA: lumbar spine (1.23 ± 0.17 g/cm² vs. 1.31 ± 0.14 g/cm²; $P = 0.28$), femoral neck (1.09 ± 0.13 g/cm² vs. 1.13 ± 0.17 g/cm², $P = 0.52$), and total femur (1.06 ± 0.15 g/cm² vs. 1.14 ± 0.16 g/cm², $P = 0.28$) for sLT4 and LT4 groups, respectively. All values were within the normal range, both in sLT4 treated and LT4 replacement therapy. Of note, no patient presented low BMD (Z-score < -2). **Conclusions:** Long term sLT4 therapy in young DTC patients are not associated with reduced BMD.

56603 EXPANDED EXOME ANALYSIS IN A FAMILY WITH NON-MEDULLARY THYROID CANCER CASES

Mariana Teixeira Rodrigues¹, Fernanda Christanini Koyama¹, Anamaria Aranha Camargo¹, Fernanda Orpinelli Ramos do Rego¹, Pedro Alexandre Favorello Galante¹, Janete Maria Ceruffi¹, Gianna Maria Griz Carvalheira¹, Ileana Gabriela Sanchez de Rubió¹

¹ Universidade Federal de São Paulo (Unifesp)

Introduction: Familial non-medullary thyroid cancer (FNMTc) corresponds to 3%-6% follicular thyroid epithelium carcinomas and is syndromic when patients present Mendelian tumor syndromes with low preponderance of thyroid tumors, such as Cowden's syndrome (CS), Gardner's syndrome, Carney's complex, and Werner's syndrome. Their clinical manifestations may vary between families. Gene mutations have already been associated with these syndromes and in 80%-85% of CS cases PTEN mutations have been identified. **Objective:** Investigate genetic alterations in a family with suspicious of syndromic FNMTc. **Methods:** The family from Piauí has 13 members diagnosed with thyroid, skin, breast, lung, gastric, oral or bone cancer. Although it does not clearly fit into any of the FNMTc syndromes, the possibility of being a CS was not ruled out. Therefore, PTEN gene (exon and promoter) mutations were first screened by Sanger's sequencing from peripheral blood DNA from a thyroid cancer patient. Subsequently, expanded whole exome sequencing (WES) of three cancer patients was carried out using the SureSelectXT Human All Exon V6 + UTR Capture Library kit (Agilent) and the Illumina® NextSeq™ 500 platform. WES generated 3.69-4.85 Gb of data/sample with coverage greater than 30x. **Results:** Six PTEN polymorphisms were detected. Bioinformatic analysis identified 5 SNVs with high potential to be mutations in the three patients and absent in databases and in 18 Brazilian individuals without cancer. Only one alteration seemed to segregate with the disease and was present in two asymptomatic individuals. However, it was discarded because the alteration located in X chromosome could not be inherited from the transmitting father with lung cancer to a male asymptomatic carrier. No indels were associated to the familial disease. Thus, it was ruled out the possibility of being a case of syndromic FNMTc, raising the hypothesis of being a case of familial cancer or family grouping, characterized by the lack of inheritance pattern, high number of individuals with sporadic tumors, presence of various types of tumors, age of onset like sporadic cases and that may result from similar environment and/or lifestyle. **Conclusion:** We conclude that this family could be classified as a familial case of non-hereditary cancer. However, studies of other regions of the genome or the use of alternatives pipelines would suggest a genetic predisposition to cancer.