

ABSTRAK

Hormon tiroid sangat penting dalam metabolisme tulang normal, namun dapat mempunyai efek merugikan struktur tulang pada keadaan disfungsi tiroid seperti hipertiroid. Hipertiroidisme ditandai dengan peningkatan kadar T3 dan T4 serta penurunan kadar TSH dalam serum. Kelenjar tiroid juga mengeluarkan hormon kalsitonin yang bersama dengan hormon paratiroid mengatur kandungan kalsium darah. Saat kondisi hipertiroid, tubuh akan kehabisan vitamin dan nutrisi yang menyebabkan tulang menjadi rapuh, dimana kalsium merupakan salah satu mineral penting dalam metabolisme tulang.

Tujuan penelitian ini untuk mengetahui gambaran kadar TSHs dan *Free T4* terhadap kalsium darah pada penderita hipertiroid. Penelitian ini merupakan penelitian deskriptif observasional dengan pendekatan *cross sectional*. Sebanyak 36 data sampel yang telah diobservasi selama bulan Januari - April 2024 sebagai pasien hipertiroid dilakukan pemeriksaan kalsium darah. Data yang diperoleh dilakukan analisa deskriptif dan korelasi.

Hasil pemeriksaan didapatkan kadar TSHs, *Free T4*, dan kalsium rata-rata penderita hipertiroid adalah 0,0789 μ IU/mL, 1,71 ng/dL, dan 8,3 mg/dL. Dari hasil uji statistik korelasi *Spearman* diperoleh korelasi lemah dari kadar TSHs ($r=-0,140$ dan $p=0,415$) dan *Free T4* ($r=-0,059$ dan $p=0,734$) dengan kadar kalsium. Dengan demikian, pada penderita hipertiroid dengan kadar TSHs yang rendah dan *Free T4* yang meningkat, sebagian menunjukkan kadar kalsium normal dan menurun, sehingga dapat dikatakan bahwa tidak ada hubungan bermakna antara kadar kalsium dengan kadar TSHs dan *Free T4* pada penderita hipertiroid.

Kata Kunci : TSHs, *Free T4*, Kalsium, Hipertiroid

ABSTRACT

Thyroid hormone is essential for normal bone metabolism, but can have detrimental effects on bone structure in conditions of thyroid dysfunction such as hyperthyroidism. Hyperthyroidism is characterized by increased T3 and T4 levels and decreased TSH levels in serum. The thyroid gland also secretes calcitonin which together with parathyroid hormone, regulates blood calcium. In hyperthyroidism, the body will run out of vitamins and nutrients which causes bones to become brittle, where calcium is an important mineral in bone metabolism.

The aim of this study is to determine the description of TSHs and Free T4 levels on blood calcium in hyperthyroid patients. This research is a descriptive observational study with a cross sectional approach. A total of 36 sample data that were observed during January - April 2024 as hyperthyroid patients underwent blood calcium examination. The data obtained were subjected to descriptive and correlation analysis.

The results of the examination showed that the average levels of TSHs, Free T4, and calcium for hyperthyroid sufferers were 0.0789 μ IU/mL, 1.71 ng/dL, and 8.3 mg/dL. From the results of the *Spearman* correlation statistical test, a weak correlation was obtained between TSHs levels ($r=-0.140$ and $p=0.415$) and Free T4 ($r=-0.059$ and $p=0.734$) with calcium levels. Thus, in hyperthyroid sufferers with low TSHs levels and increased Free T4, some show normal and decreased calcium levels, so it can be said that there is no significant relationship between calcium levels and TSHs and Free T4 levels in hyperthyroid.

Keywords: TSHs, Free T4, Calcium, Hyperthyroidism