

**KORELASI ULTRASONOGRAFI NODUL TIROID BERDASARKAN  
AMERICAN COLLEGE OF RADIOLOGY - THYROID IMAGING REPORTING  
AND DATA SYSTEM DENGAN KADAR SERUM THYROID STIMULATING  
HORMONE, TRIIODOTIRONIN DAN TIROKSIN**

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**INTISARI**

**Latar belakang:** Nodul tiroid adalah masalah kesehatan umum di seluruh dunia yang semakin meningkat. Ultrasonografi nodul tiroid dengan *American College of Radiology* (ACR) sistem klasifikasi Sistem Pelaporan dan Data Pencitraan Tiroid (TIRADS), telah digunakan dalam evaluasi dan penilaian resiko keganasan nodul tiroid. *Thyroid stimulating hormone* (TSH), triiodotironin (T3) dan tiroksin (T4) diketahui berpengaruh dalam pertumbuhan nodul tiroid terutama ke arah keganasan.

**Tujuan:** Penelitian ini bertujuan untuk mengetahui dan menjelaskan hubungan antara ACR-TIRADS, TSH, T3 dan T4 dalam penentuan resiko nodul tiroid.

**Bahan dan Metode:** Penelitian ini adalah studi retrospektif *cross-sectional* yang dilakukan di rumah sakit Dr. Sardjito Yogyakarta dari Desember 2021 hingga Desember 2022. Subyek penelitian diambil dengan menggunakan metode *consecutive non-random sampling*. Semua nodul tiroid yang diperiksa dengan ultrasonografi, diklasifikasikan menurut ACR-TIRADS. Tes fungsi tiroid TSH, T3, dan T4 diukur. Diagnosis pasti nodul tiroid diberikan berdasarkan patologi anatomi. Perbedaan kadar TSH, T3 dan T4 dianalisis antar kelompok penelitian Uji korelasi digunakan untuk menghubungkan variabel-variabel dalam penelitian.

**Hasil:** Dari 31 sampel penelitian sebagian besar terdiri dari perempuan sebanyak 24 orang (77.4%), rentang usia subyek penelitian paling banyak adalah usia 20-59 tahun sebanyak 20 orang (64,4%), sebagian besar tidak memiliki riwayat keganasan tiroid pada keluarga sebanyak 28 orang (90,3%), dan mayoritas sebanyak 18 orang (58%) dengan diagnosis nodul tiroid benigna berdasarkan patologi anatomi. Pada analisis korelasi didapatkan hasil bahwa sebagian besar sampel berada pada kategori ACR-TIRADS TR3 dan termasuk ke dalam kategori kadar TSH, T3 dan T4 rendah. Hasil analisis bivariat menunjukkan bahwa tidak terdapat korelasi yang signifikan antara ACR-TIRADS dengan TSH, T3 dan T4 dengan nilai *p* masing-masing sebesar 0,228; 0,820 dan 0,339. Penelitian juga menunjukkan tingkat keeratan yang rendah antara ACR-TIRADS dengan TSH, T3 dan T4.

**Kesimpulan:** Tidak terdapat korelasi antara kategori ACR-TIRADS dengan kadar TSH, triiodotironin maupun tiroksin.

**Kata kunci:** ACR-TIRADS, *thyroid stimulating hormone* (TSH), triiodotironin (T3), tiroksin (T4), nodul tiroid.

## **CORRELATION OF THYROID NODULES ULTRASONOGRAPHIC BASED ON AMERICAN COLLEGE OF RADIOLOGY - THYROID IMAGING REPORTING AND DATA SYSTEM WITH THYROID STIMULATING HORMONE, TRIIODOTHYRONIN AND THYROXIN**

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### **ABSTRACT**

**Background:** Thyroid nodules are an increasingly common health problem worldwide. Ultrasonography of thyroid nodules with the American College of Radiology (ACR) Thyroid Imaging Data and Reporting System (TIRADS) classification system, has been used in the evaluation and assessment of malignant risk of thyroid nodules. Thyroid stimulating hormone (TSH), triiodothyronine (T3) and thyroxine (T4) are known to influence the growth of thyroid nodules, especially towards malignancy.

**Objective:** This study aims to determine and explain the relationship between ACR-TIRADS, TSH, T3 and T4 in determining the risk of thyroid nodules.

**Material and Methods:** This research is a cross-sectional retrospective study conducted at Dr. Sardjito Yogyakarta from December 2021 to December 2022. Research subjects were taken using the consecutive non-random sampling method. All thyroid nodules examined by ultrasonography were classified according to ACR-TIRADS. Thyroid function tests TSH, T3, and T4 were measured. Definitive diagnosis of thyroid nodules is given based on anatomical pathology. Differences in TSH, T3 and T4 levels were analyzed between research groups. Correlation tests were used to associate the variables in the study.

**Results:** Of the 31 research samples, most of them consisted of women, 24 people (77.4%), the age range of the most research subjects was 20-59 years old, 20 people (64.4%), most of them had no family history of thyroid malignancy. as many as 28 people (90.3%), and the majority of 18 people (58%) were diagnosed with benign thyroid nodule based on anatomical pathology. In the correlation analysis, the results showed that the majority of samples were in the ACR-TIRADS TR3 category and included in the low TSH level category, and the high T3 and T4 level categories. The results of bivariate analysis showed that there was no significant correlation between ACR-TIRADS and TSH, T3 and T4 with a p-value of 0.228; 0.820 and 0.339 respectively. Research also shows a low level of correlation coefficient between ACR-TIRADS and TSH, T3 and T4.

**Conclusion:** There is no correlation between the ACR-TIRADS category and TSH, triiodothyronine or thyroxine levels.

**Key words:** ACR-TIRADS, thyroid stimulating hormone (TSH), triiodothyronine (T3), thyroxine (T4), thyroid nodules