

**AKURASI AMERICAN COLLEGE OF RADIOLOGY - THYROID IMAGING  
REPORTING AND DATA SYSTEM DALAM EVALUASI KEKANASAN  
NODUL TIROID**

David Gunawan Putra<sup>1</sup>, Lina Choridah<sup>2</sup>, Hesti Gunarti<sup>2</sup>

<sup>1</sup>Residen dan <sup>2</sup>Staff Departemen Radiologi,  
Fakultas Kedokteran, Kesehatan Masyarakat dan Keperawatan Universitas Gadjah  
Mada,  
Yogyakarta-Indonesia

**INTISARI**

**Latar Belakang:** Nodul tiroid adalah masalah kesehatan yang sering dijumpai, kurang dari 10% nodul tiroid adalah ganas dan ultrasonografi tiroid menunjukkan temuan nodul hingga 50% sampai 67% dari populasi. Komite *American College of Radiology* (ACR) memperkenalkan sistem klasifikasi resiko keganasan nodul tiroid berbasis USG (*American College of Radiology-Thyroid imaging reporting and data system*), bertujuan mendeteksi keganasan tiroid, serta mengurangi biopsi tiroid yang tidak diperlukan.

**Tujuan:** Mengetahui akurasi USG berdasarkan ACR-TIRADS dalam evaluasi keganasan nodul tiroid dengan baku emas histopatologi anatomi.

**Bahan dan Metode:** Penelitian ini merupakan penelitian observasional analitik dengan rancangan *cross sectional* secara retrospektif. Sampel adalah citra USG nodul tiroid RSUP Dr. Sardjito Desember 2021 – Desember 2022 yang diinterpretasikan ke ACR-TIRADS dan dibandingkan dengan histopatologi anatomi. Pada penelitian ini, ACR-TIRADS 1, 2 dan 3 dimasukkan ke dalam kategori mengarah jinak dan ACR-TIRADS 4 dan 5 dimasukkan ke dalam kategori mengarah ganas.

**Hasil:** Dari 36 Sampel penelitian Hasil uji diagnostik ACR-TIRADS mendapatkan sensitivitas ACR-TIRADS 83,3%; spesifisitas 58,3%; nilai prediksi positif 50%; nilai prediksi negatif 87,5%; dan akurasi 66,7%. ACR-TIRADS mampu menilai 83% nodul ganas untuk direkomendasikan AJH, dan mampu menghindarkan AJH pada 58% nodul jinak.

**Kesimpulan:** Ultrasonografi dengan ACR-TIRADS memiliki sensitivitas, spesifisitas, nilai prediksi positif, nilai prediksi negatif, akurasi yang cukup tinggi, sehingga dapat menyarankan rekomendasi *follow up* evaluasi pasien dengan nodul ganas.

**Kata kunci:** ACR-TIRADS, USG, nodul tiroid, akurasi

## ACCURACY OF THE AMERICAN COLLEGE OF RADIOLOGY - THYROID IMAGING REPORTING AND DATA SYSTEM IN THE EVALUATION OF MALIGNANT THYROID NODULES

David Gunawan Putra<sup>1</sup>, Lina Choridah<sup>2</sup>, Hesti Gunarti<sup>2</sup>

<sup>1</sup>Residen and <sup>2</sup>Staff of Department of Radiology,  
Faculty of Medicine, Public Health and Nursing, Gadjah Mada University,  
Yogyakarta-Indonesia

### ABSTRACT

**Background:** Thyroid nodules are a common health problem, less than 10% of thyroid nodules are malignant and thyroid ultrasonography reveals nodules in up to 50% to 67% of the population. The American College of Radiology (ACR) Committee introduced an ultrasound-based risk classification system for thyroid nodule malignancy (American College of Radiology-Thyroid imaging reporting and data system), aimed at detecting thyroid malignancies, as well as reducing unnecessary thyroid biopsies.

**Objective:** To determine the accuracy of ultrasound based on ACR-TIRADS in evaluating thyroid nodule malignancy using the gold standard of anatomical histopathology.

**Materials and Methods:** This research is an analytical observational study with a retrospective cross sectional design. The sample is an ultrasound image of a thyroid nodule at RSUP Dr. Sardjito December 2021 – December 2022, which was interpreted using ACR-TIRADS and compared with anatomical histopathology. In this study, ACR-TIRADS 1, 2 and 3 were included in the benign category and ACR-TIRADS 4 and 5 were included in the malignant category.

**Results:** From 36 research samples, The ACR-TIRADS diagnostic test results obtained an ACR-TIRADS sensitivity of 83.3%; specificity 58.3%; positive predictive value 50%; negative predictive value 87.5%; and 66.7% accuracy. ACR-TIRADS was able to assess 83% of malignant nodules for recommended AJH, and was able to avoid AJH in 58% of benign nodules.

**Conclusion:** Ultrasonography with ACR-TIRADS has quite high sensitivity, specificity, positive predictive value, negative predictive value, and accuracy, so it can suggest recommendations for follow-up evaluation of patients with malignant nodules.

**Key words:** ACR-TIRADS, ultrasound, thyroid nodules, accuracy