

## ABSTRAK

**Latar Belakang :** Penyakit Graves merupakan penyakit autoimun yang ditandai dengan produksi autoantibodi seperti TRAb, anti TPO, dan anti Tg. Gangguan fungsi ginjal pada pasien Graves dapat terjadi melalui berbagai mekanisme, baik hemodinamik maupun imunologis. Hubungan antara kadar autoantibodi tiroid dengan parameter fungsi ginjal masih belum banyak dilaporkan.

**Tujuan :** Menganalisis adanya hubungan antara autoantibodi tiroid (TRAb, anti TPO, dan anti Tg) dengan gangguan fungsi ginjal (dinilai dari kadar ACR dan eGFR) pada pasien penyakit Graves.

**Metode :** Penelitian ini menggunakan desain potong lintang (*cross-sectional*) pada pasien penyakit Graves yang memenuhi kriteria inklusi dan eksklusi. Data yang dikumpulkan meliputi karakteristik klinis, kadar autoantibodi tiroid, serta parameter fungsi ginjal berupa ACR dan eGFR. Analisis statistik dilakukan menggunakan uji korelasi Spearman untuk analisis bivariat dan regresi linear multivariat untuk menilai faktor yang berpengaruh secara independen.

**Hasil :** Median nilai ACR adalah 7,0 mg/g kreatinin (1,2–468,0), mengindikasikan variasi derajat albuminuria pada subjek penelitian, mulai dari normal hingga peningkatan signifikan. Rerata eGFR adalah  $116,7 \pm 20,8$  mL/menit/1,73 m<sup>2</sup> menunjukkan bahwa fungsi ginjal masih dalam batas normal. Analisis bivariat menunjukkan bahwa kadar anti Tg berhubungan bermakna dengan ACR ( $r = 0,524$ ;  $p = 0,003$ ), sedangkan TRAb dan anti TPO tidak menunjukkan hubungan bermakna dengan ACR maupun eGFR. Pada analisis regresi multivariat, TRAb ( $p = 0,023$ ) merupakan faktor independen terhadap ACR.

**Kesimpulan :** Kadar anti Tg berhubungan dengan peningkatan ACR pada pasien Penyakit Graves. TRAb merupakan faktor yang berpengaruh secara independen terhadap nilai ACR. Temuan ini menunjukkan adanya keterkaitan antara autoimunitas tiroid dan gangguan fungsi ginjal pada pasien penyakit Graves.

**Kata kunci :** Penyakit Graves, TRAb, anti TPO, anti Tg, gangguan fungsi ginjal

## **ABSTRACT**

**Background :** *Graves' disease is an autoimmune disorder characterized by the production of autoantibodies such as TRAb, anti-TPO, and anti-Tg. Although renal dysfunction may occur in Graves' disease, the association between thyroid autoantibody levels and renal function remains unclear.*

**Objective :** *To analyze the association between thyroid autoantibodies (TRAb, anti TPO, and anti Tg) and renal dysfunction assessed by ACR and eGFR in patients with Graves' disease.*

**Methods :** *An observational analytic study using a cross-sectional design was conducted in patients with Graves' disease who met the inclusion and exclusion criteria. Data collected included clinical characteristics, thyroid autoantibody levels, and renal function parameters, including ACR and eGFR. Statistical analysis was performed using Spearman correlation for bivariate analysis and multivariate linear regression to identify independent predictors.*

**Results :** *The median ACR was 7.0 mg/g creatinine (1.2–468.0), indicating a wide variation in the degree of albuminuria among study subjects, ranging from normal to markedly increased levels. The mean eGFR was  $116.7 \pm 20.8$  mL/min/1.73 m<sup>2</sup>, suggesting generally preserved renal function. Bivariate analysis showed that anti-thyroglobulin (anti-Tg) levels were significantly associated with ACR ( $r = 0.524$ ,  $p = 0.003$ ), whereas TRAb and anti-TPO levels were not significantly associated with either ACR or eGFR. In multivariate analysis TRAb levels ( $p = 0.023$ ) were identified as independent factors associated with ACR).*

**Conclusion :** *Anti Tg was associated with increased ACR, whereas TRAb independently influenced ACR in patients with Graves' disease, supporting a link between thyroid autoimmunity and early kidney dysfunction.*

**Keywords :** *Graves' disease, TRAb, anti-TPO, anti-Tg, renal function*