

## ABSTRAK

### ANALISIS FAKTOR RISIKO TERHADAP PENYAKIT JANTUNG TIROID PADA PASIEN DENGAN PENYAKIT *GRAVES* YANG BEROBAT DI INSTALASI RAWAT JALAN RUMAH SAKIT UMUM PUSAT DR. SARDJITO - YOGYAKARTA

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**Pendahuluan:** Penyakit *Graves* merupakan penyebab tersering hipertiroidisme. Kondisi ini dapat menimbulkan keterlibatan kardiovaskular yang dikenal sebagai penyakit jantung tiroid (PJT). PJT memiliki spektrum klinis yang dimulai dari kelainan struktur, fungsi, hingga kejadian aritmia. PJT berkontribusi terhadap peningkatan morbiditas dan mortalitas pada penderita dengan penyakit *Graves*.

**Tujuan:** Mengetahui faktor-faktor risiko yang berhubungan dengan kejadian penyakit jantung tiroid (PJT) pada pasien dengan penyakit *Graves*.

**Metode Penelitian:** Penelitian ini merupakan studi kohort retrospektif yang melibatkan 74 pasien terkonfirmasi dengan penyakit *Graves* yang menjalani pengobatan di Poliklinik Endokrin, RSUP Dr. Sardjito, Yogyakarta. Data klinis, laboratorium (Kadar FT4 *baseline*, waktu normalisasi FT4, dan TSH *baseline*), dan komorbiditas (dislipidemia dan hipertensi) dikumpulkan dari rekam medis. PJT didefinisikan berdasarkan adanya temuan ekokardiografi abnormal dari segi struktural dan fungsional. Analisis bivariat dilakukan dengan menggunakan chi-square dan analisis multivariat menggunakan regresi logistik dengan moda regresi *backward likelihood ratio*.

**Hasil Penelitian:** Sebanyak 41 partisipan (55,4%) terdiagnosis mengalami PJT. Analisis bivariat menunjukkan bahwa waktu pencapaian kadar FT4 normal > 3 bulan ( $p = 0,030$ ; OR 2,898; 95% CI 1,097–7,654) dan kadar FT4 *baseline*  $\geq 3$  ng/dL ( $p = 0,031$ ; OR 2,918; 95% CI 1,087–7,828) berhubungan signifikan dengan peningkatan kejadian PJT. Usia, jenis kelamin, kadar TSH *baseline*, dislipidemia, dan hipertensi tidak menunjukkan hubungan yang bermakna. Pada analisis multivariat, hanya waktu pencapaian kadar FT4 normal  $\leq 3$  bulan yang tetap berhubungan signifikan dengan kejadian PJT (adjusted OR 3,655; 95% CI 1,282–10,419).

**Kesimpulan:** Kontrol hormonal (FT4) yang lebih lama berkaitan dengan peningkatan kejadian PJT pada penderita dengan penyakit *Graves*.

**Kata kunci:** hipertiroid, gagal jantung, atrial fibrilasi, dan tiroksin.

## ABSTRACT

### ANALYSIS OF RISK FACTORS FOR THYROID HEART DISEASE IN PATIENTS WITH *GRAVES'* DISEASE ATTENDING THE OUTPATIENT CLINIC OF DR. SARDJITO GENERAL HOSPITAL, YOGYAKARTA

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**Introduction:** *Graves'* disease is the most common etiology of hyperthyroidism. This condition may lead to cardiovascular involvement referred as thyroid heart disease (THD). THD encompasses a broad clinical spectrum ranging from structural and functional abnormalities to arrhythmic events. Thyroid heart disease contributes to increased morbidity and mortality among patients with *Graves'* disease.

**Objective:** To identify risk factors associated with the occurrence of thyroid heart disease (THD) in patients with *Graves'* disease.

**Methods:** This retrospective cohort study involved 74 patients with confirmed *Graves'* disease who received treatment at the Endocrinology Outpatient Clinic of Dr. Sardjito General Hospital, Yogyakarta. Clinical data, laboratory parameters (baseline FT4 levels, time to FT4 normalization, and baseline TSH levels), and comorbidities (dyslipidemia and hypertension) were collected from medical records. Thyroid heart disease was defined based on the presence of structural and/or functional abnormalities on echocardiographic examination. Bivariate analysis was performed using the chi-square test, and multivariate analysis was conducted using logistic regression with the backward likelihood ratio method.

**Results:** A total of 41 participants (55.4%) were diagnosed with THD. Bivariate analysis demonstrated that achieving normal FT4 levels within  $\leq 3$  months ( $p = 0.030$ ; OR 2,898; 95% CI 1,097–7,654) and baseline FT4 levels  $< 3$  ng/dL ( $p = 0.031$ ; OR 2,918; 95% CI 1,087–7,828) were significantly associated with a higher occurrence of THD. Age, sex, baseline TSH levels, dyslipidemia, and hypertension were not significantly associated with THD. In multivariate analysis, only achieving FT4 normalization within  $> 3$  months remained independently associated with a reduced risk of THD (adjusted OR 3,655; 95% CI 1,282–10,419).

**Conclusion:** Prompt hormonal control, as reflected by delayed FT4 normalization, is associated with a higher occurrence of thyroid heart disease in patients with *Graves'* disease.

**Keywords:** hyperthyroidism, heart failure, atrial fibrillation, thyroxine.