

PERBEDAAN GAMBARAN ELEKTROKARDIOGRAFI REMAJA OBES DENGAN HIPERTENSI DAN TANPA HIPERTENSI

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INTISARI

Latar Belakang: Obesitas remaja merupakan masalah kesehatan penting karena prevalensnya meningkat. Obesitas berhubungan dengan hipertensi yang dapat menyebabkan perubahan patologi pada struktur mekanik dan listrik jantung. EKG merupakan pemeriksaan aktivitas listrik jantung yang mudah, murah, dan tersedia luas. Penelitian tentang perbedaan gambaran EKG pada anak obes dengan hipertensi dan tanpa hipertensi masih sangat terbatas.

Tujuan: Mengetahui apakah terdapat perbedaan gambaran EKG pada anak obes dengan hipertensi dibandingkan dengan tanpa hipertensi.

Metode: Penelitian *cross-sectional* dengan data sekunder dari penelitian *Is vitamin D deficiency an independent risk factor for cardiovascular risks among obese adolescence in Indonesia?* pada siswa SMA obes usia 15-18 tahun di Yogyakarta pada tahun 2016. Subjek dengan data tidak lengkap dan menderita diabetes melitus, penyakit ginjal, penyakit jantung, riwayat penyakit sistemik, penyakit infeksi akut, serta riwayat sedang menggunakan steroid dieksklusi. Analisis bivariat menggunakan uji *t test* dan *chi square* dengan interval kepercayaan 95%, hasil dianggap bermakna secara statistik jika $p < 0,05$.

Hasil. Subjek penelitian adalah 177 remaja obes terdiri dari 100 (56.5%) laki-laki dan 77(43,5%) perempuan. Didapatkan subjek hipertensi sebesar 30%. Pada analisis bivariat tidak didapatkan perbedaan signifikan rerata frekuensi jantung, durasi gelombang P, interval PR, interval QTc, durasi QRS, amplitudo gelombang R, dan gelombang S serta prevalens *left ventricular hypertrophy (LVH)*, *strain pattern*, pemanjangan durasi gelombang P, kompleks QRS, interval QTc, dan pergeseran axis P, QRS, dan T ke kiri ($p > 0,05$).

Kesimpulan: Penelitian ini belum bisa membuktikan adanya perbedaan bermakna gambaran EKG pada remaja obes dengan hipertensi dibandingkan tanpa hipertensi.

Kata kunci: obesitas, hipertensi, elektrokardiografi, EKG, remaja

ELECTROCARDIOGRAPHIC PROFILE IN OBESE ADOLESCENTS WITH AND WITHOUT HYPERTENSION

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ABSTRACT

Background: Childhood obesity is an important public health problem because of its significant increased prevalence. Obesity is related to hypertension, it can stimulate the changes of the mechanical structure and electricity of the heart. Electrocardiography (ECG) is a simple, low cost, and widely available tool that can detect the electricity of the heart. Few data exist on the differences of electrocardiographic profile in obese adolescents with and without hypertension.

Objective: to analyze the differences of electrocardiographic profile in obese adolescents with and without hypertension.

Methods: A cross-sectional study was performed using secondary data based on study *Is vitamin D deficiency an independent risk factor for cardiovascular risks among obese adolescence in Indonesia?* conducted in 2016 and involved obese senior high school students aged 15-18 years old in Yogyakarta. Subjects with incomplete data or presence of diabetes melitus, renal disease, heart disease, systemic disease, acute infection, and history of steroid use were excluded. T-test and chi-square test were used to analyze the differences of ECG parameters and $p < 0.05$ was considered to be statistically significant different.

Results: During the study period, we recruited 177 obese adolescents consisted of 100 (56.5%) boys and 77 (43.5%) girls. The prevalence of hypertension was 30%. There were no significant differences of the mean of heart rate, P wave duration, PR interval duration, QTc interval duration, QRS duration, R wave and S wave amplitude and the prevalence of *left ventricular hyperthrophy, strain pattern, prolonged P wave duration, QRS duration, QTc interval duration, and left axis deviation of P, QRS, and T axis.*

Conclusion: This study has not been able to prove a significant difference of electrocardiographic profile in obese adolescents with and without hypertension.

Keywords: obesity, hypertension, electrocardiography, ECG, adolescents