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ORIGINAL ARTICLE

Electrocardiographic changes in adults living in a southern Brazilian city: A population-based study☆

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KEYWORDS
Risk factors;
Cardiovascular disease;
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Abstract
Introduction and Objectives: Abnormalities on the resting electrocardiogram (ECG) are predictors of mortality and cardiovascular events among asymptomatic adults. The aim of this study was to estimate the prevalence of ECG abnormalities in adults and their association with cardiovascular risk factors.
Methods: We performed a cross-sectional analysis of ECGs in adults aged 19–59 years, living in Tubarão, Santa Catarina, Brazil. Data were collected between November 2011 and July 2012. Electrocardiographic findings were classified according to the guidelines of the Brazilian Society of Cardiology on analyzing and issuing electrocardiographic reports, and were divided into major abnormalities, minor abnormalities and no changes, as in previous studies. Pearson's chi-square test and ANOVA were used to analyze the association of ECG parameters with traditional cardiovascular risk factors.

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Results: A total of 361 participants were studied. Mean age was 40.4±12.2 years; 232 (64.3%) were women. Minor abnormalities were found in 16.9% and major abnormalities in 3.3%. Among the risk factors examined, gender, smoking, alcohol consumption, systemic hypertension, diabetes, and high Framingham risk score were significantly associated with major and minor ECG changes.
Conclusions: The prevalence of electrocardiographic changes was 20.2% in the population surveyed, the majority being minor. Both major and minor electrocardiographic abnormalities showed significant associations with risk of coronary artery disease, and may predict cardiovascular risk in asymptomatic adults.

PALAVRAS-CHAVE
Fatores de risco;
Doenças cardiovasculares;
Eletrocardiografia

Alterações eletrocardiográficas na população adulta de cidade do sul do Brasil: estudo populacional

Resumo
Introdução e objetivos: Anormalidades em um eletrocardiograma (ECG) de repouso são fatores preditores de mortalidade e eventos cardiovasculares entre adultos assintomáticos. Estimar a prevalência de anormalidades eletrocardiográficas em adultos e possível associação com fatores de risco.
Métodos: Estudo transversal que avaliou adultos com idade entre 19-59 anos, provenientes do município de Tubarão (SC). A colheita dos dados ocorreu entre novembro de 2011 a julho de 2012. Os laudos eletrocardiográficos foram classificados de acordo com a diretriz da Sociedade Brasileira de Cardiologia sobre Análise e Emissão de Laudos Eletrocardiográficos e divididos em anormalidades maiores, anormalidades menores e sem alterações, conforme estudos anteriores. Para a associação do ECG com os tradicionais fatores de risco cardiovasculares foi utilizado o método qui-quadrado de Pearson ou ANOVA.
Resultados: Foram estudados 361 participantes, a média de idade foi de 40,4 (DP = 12,2) anos e 232 (64,3%) eram mulheres. Verificou-se 16,9% de anormalidades menores e 3,3% de anormalidades maiores. Dentre os fatores de risco estudados, sexo, tabagismo, alcoolismo, hipertensão arterial sistémica, diabetes *mellitus*, e maior *score* de risco de Framingham (ERF) estiveram associados significativamente às alterações maiores e menores do ECG.
Conclusões: Houve prevalência de 20,2% de alterações eletrocardiográficas na população estudada, sendo a maioria de anormalidades menores. As anormalidades eletrocardiográficas maiores e menores tiveram associações significativas com fatores de risco de doença arterial coronária, podendo este exame predizer risco cardiovascular em populações adultas assintomáticas.

Introduction

Cardiovascular disease (CVD) is associated with high rates of morbidity and mortality in developed countries, and has been the leading cause of mortality in Brazil since the 1960s. In 2008 CVD accounted for 31.8% of mortality in the country as a whole and 38% of deaths recorded in the municipality of Tubarão, Santa Catarina.[1]

CVD is responsible for high health costs and affects a large proportion of the working population. Its economic impact in Brazil is demonstrated by the following figures: it accounts for 65% of deaths in adults aged 30–69 years, 14% of hospital admissions in this age-group (1 150 000 hospitalizations/year) and 40% of early retirements.[2] The causes of CVD are multifactorial and its prevention depends on control of cardiovascular risk factors, including smoking, obesity, dyslipidemia, systemic hypertension, sedentary life styles and diabetes.[3–5]

Abnormalities on the resting electrocardiogram (ECG) are an independent predictor of the development of coronary artery disease (CAD) and are associated with increased mortality and cardiovascular risk.[6–10] Abnormal Q waves on the ECG may indicate a silent or unrecognized myocardial infarction. In the Framingham study, a quarter of non-fatal infarctions were only detected through ECG changes.[11–13]