

CASE REPORT

ΕΝΔΙΑΦΕΡΟΥΣΑ ΠΕΡΙΠΤΩΣΗ

Right bundle branch block and omega-3 fatty acids

An asymptomatic 68-year-old Brazilian man had a normal routine electrocardiogram, while annual control in February 2021 showed a right bundle branch block, with no changes in chest images and laboratory tests, including Chagas' disease. The echocardiogram resulted normal; notwithstanding, 1,000 mg daily of omega-3 fatty acids (O3FAs) (eicosapentaenoic acid plus docosahexaenoic acid) were preventively prescribed. Worthy of note was the electrocardiogram of April 2024 revealing an improved pattern. Considering that this previously healthy patient did not undergo any other treatment, these findings could strengthen the hypothesis of a favorable effect with the O3FAs utilization.

The right bundle branch (RBB) of the His-Purkinje system is supplied by the anterior descending coronary artery besides the right or left circumflex coronary arteries, while the RBB block (RBBB) can be characterized by widened QRS morphology of electrocardiogram (ECG).¹⁻³ The incidence of RBBB grows with age and affects up to 11.3% of people by age 80.² The commonest associated conditions include chronic Chagasic cardiomyopathy, *cor pulmonale*, myocardial ischemia and infarction, right heart procedures, and infiltrative diseases; hyperkalemia, Lenegre's disease or Lev's disease are less frequent causes.^{2,3} The asymptomatic isolated RBBB usually does not need further evaluation, but this change may be a predictor of mortality in the myocardial infarction, and heart failure; in cases of heart failure with low ventricular ejection fraction a resynchronization is used.²

CASE PRESENTATION

In September 2011 (fig. 1) an asymptomatic 68-year-old Brazilian man had a normal routine ECG; at the same time, another routine ECG in February 2021 (fig. 2) showed a right bundle branch

block (RBBB), without evidence of abnormalities in chest imaging studies, as well as in laboratory determinations including Chagas' disease tests. The echocardiogram was normal, but 1,000 mg daily of omega-3 fatty acids (O3FAs) were preventively prescribed (eicosapentaenoic acid [EP]) and docosahexaenoic acid [DHA]). Worthy of note was the result of the recent ECG of control in April 2024 (fig. 3) that presented an improved pattern very similar to the exam performed 13 years before. As the previously healthy old patient did not utilize any other kind of treatment in the period, the possibility of a favorable cardiovascular effect of O3FAs was not discarded.

DISCUSSION

A cohort study conducted from 2016 to 2019 in Tehran evaluated the ECG parameters among 7,630 patients aged 35 years or older, with a mean age of 53.6 years for men, and 54.2% for women, comparing between genders and four age groups.⁷ The average heart rate was higher in women, the average duration of QRS and P wave, and RR intervals were higher in men. Major ECG changes occurred in 2.9% of the individuals; the RBBB, LBBB, and atrial fibrillation were

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Αποκλεισμός δεξιού σκέλους
δεματίου His και ω3 λιπαρά οξέα

Περίληψη στο τέλος του άρθρου

Key words

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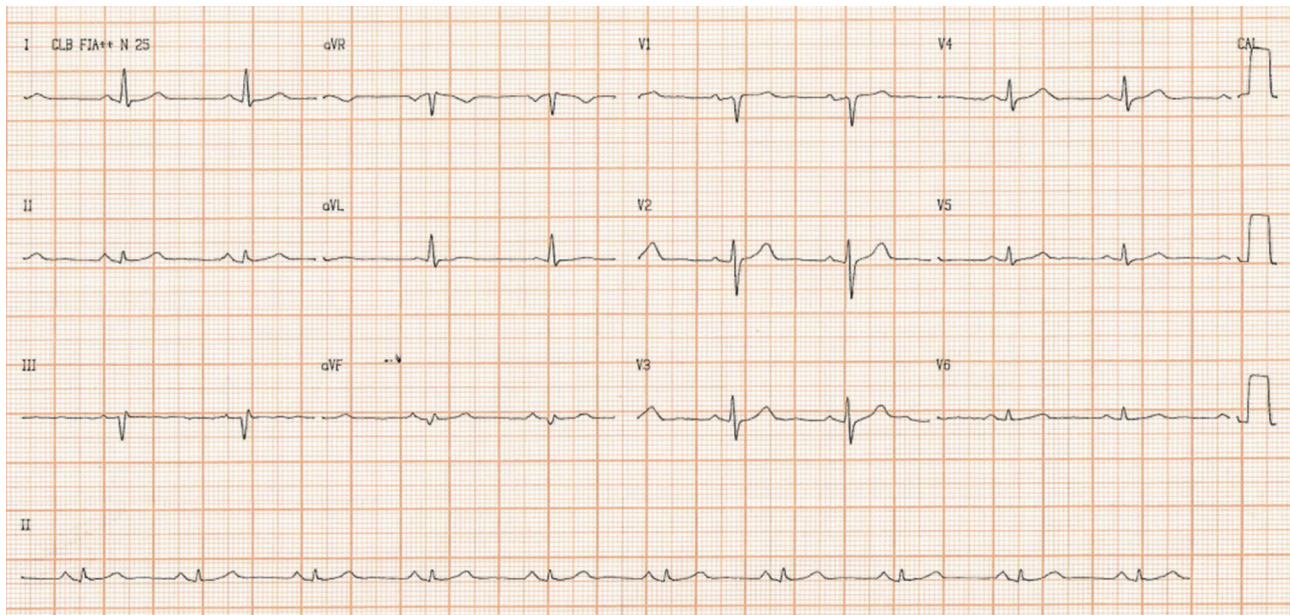


Figure 1. Electrocardiogram (ECG) of routine in September 2011.

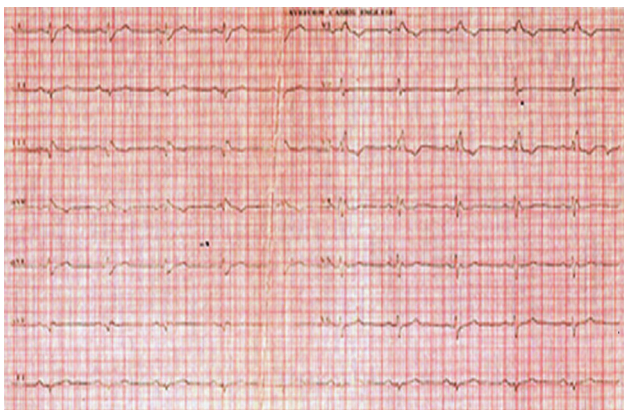


Figure 2. Electrocardiogram (ECG) of routine in February 2021.

the most common and also the more prevalent among the male patients, while the risk of major ECG abnormalities increased with aging in both genders.⁷ The authors cited two studies in northern Europe with large populations and the same increasing prevalence of the RBBB related to aging, and predominantly among males.⁷ In a Chinese study of 272 cases of acute myocardial infarction (AMI) plus new-onset RBBB treated by primary percutaneous coronary intervention (P-PCI), the patients were classified in a survival and a non-survival group; the demographic, angiographic, and ECG characteristics, besides 1-year mortality were compared between the two groups.³ The ratio of QRS/RV6-V1 as a continuous variable was converted to the high- and low-ratio group, according to the optimal



Figure 3. Electrocardiogram (ECG) of control in April 2024.

cutoff value point found by the X-tile software; high ratio of QRS/RV6-V1 was a predictor of short- and long-term adverse outcomes in AMI plus new-onset RBBB, by ischemia and a pseudo synchronization between ventricles. The authors called attention to the emergency care and need of a long-term follow-up.³

In this scenario, it seems appropriate to comment on

reported effects of the O3FAs in reducing the oxidative stress and inflammation in some cardiometabolic disorders.⁴⁻⁶ A meta-analysis of studies including 310,955 patients emphasized the O3FAs inhibition of NF-κB, stimulation of PPAR-γ, and regulation of the receptors G protein-coupled.⁴ O3FAs have been indicated to control hypertriglyceridemia and reduce the cardiovascular risks, because of the lower production of cytokines and inflammation-related proteins; but the exact dosage and time for these effects are still necessitating further research.⁴ A literature review including 19 studies about the results of the routine utilization of O3FAs supplements on the patient's mortality rate, necessity of hospitalization, cardiac function, and quality of life, confirmed the potential benefits related to improved

heart work, reduced inflammation, and decreased risks of the cardiovascular disturbances.⁵ The authors concluded by indicating O3FAs supplementation for heart failure patients; moreover, the blood levels could be included in the risk assessment of these cases aiming to better manage a nutraceutical-based modulation for individuals with the low levels.⁵ Notwithstanding, some researchers have found different results utilizing EPA compared with DHA alone or EPA plus DHA on the atherosclerotic plaque morphology, membrane oxidation and endothelial function; EPA alone had more benefit than the other O3FAs.⁶

Nutraceutical intervention on cardiac disorders with O3FAs has been considered useful; but additional research is lacking to support and clear the involved controversies.

ΠΕΡΙΛΗΨΗ

Αποκλεισμός δεξιού σκέλους δεματίου His και ω3 λιπαρά οξέα

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Ένας ασυμπτωματικός 68χρονος Βραζιλιάνος υποβλήθηκε σε ηλεκτροκαρδιογράφημα (ΗΚΓ) ρουτίνας το οποίο ήταν φυσιολογικό, ενώ ο ετήσιος έλεγχος τον Φεβρουάριο του 2021 έδειξε αποκλεισμό του δεξιού σκέλους, χωρίς αλλαγές στις εικόνες του θώρακα και στις εργαστηριακές εξετάσεις, περιλαμβανομένης της νόσου του Chagas. Το υπερηχοκαρδιογράφημα ήταν φυσιολογικό. Παρ' όλα αυτά, χορηγήθηκαν προληπτικά 1.000 mg ημερησίως ωμέγα-3 λιπαρών οξέων (O3FAs) (εικοσαπεντανοϊκό οξύ και εικοσιδυαεξανοϊκό οξύ). Αξίζει να σημειωθεί ότι στο ΗΚΓ του Απριλίου 2024 φάνηκε ένα βελτιωμένο μοτίβο. Λαμβάνοντας υπ' όψιν ότι ο εν λόγω υγιής προηγουμένως ασθενής δεν υποβλήθηκε σε κάποια άλλη θεραπεία, αυτά τα ευρήματα θα μπορούσαν να ενισχύσουν την υπόθεση της ευνοϊκής επίδρασης των O3FAs.

Λέξεις ευρητηρίου: Δεξιός κλάδος δέσμης, Ηλεκτροκαρδιογράφημα, Θεραπεία, Ωμέγα-3 λιπαρά οξέα

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