P5581 I BEDSIDE
Impact of unsaturated fatty acids on prediction of ventricular fibrillation and paroxysmal atrial fibrillation - importance of eicosapentaenoic acid to arachidonic acid ratio

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Introduction: It is well known that a low ratio of serum eicosapentaenoic acid (EPA) to arachidonic acid (AA) is closely related to cardiovascular events. Also, some studies report that ingestion of fish oil fatty acid significantly reduce potential lethal ventricular arrhythmia (VA) and sudden cardiac death (SCD), but its mechanism is not known. We investigate the relationship between EPA/AA ratio and occurrence of ventricular fibrillation to patients with arrhythmia and control.

Methods: We measured EPA/AA ratio in total 1024 consecutive patients with arrhythmia (atrial tachyarrhythmias n=511), ventricular tachyarrhythmias (n=155), bradycardia (n=41) and control (n=707) in our hospital. Mean age is 64±15 years old (606 male). Among ventricular tachyarrhythmias patients, 76 had premature ventricular contraction (PVC), 12 sustained ventricular tachycardia (VT) and 67 ventricular fibrillation (VF). Nineteen of 40 patients with no ischemic VF were without organic heart disease. Among atrial tachyarrhythmia, atrial fibrillation (AF) occurred in 375 patients (200 paradoxal AF), 175 with an atrial flutter. In all AF patients, BNP level, Hba1c, low-density/high-density lipoprotein ratio, presence of hyperthyroidism and past history of cerebral vascular disease were observed. We analyzed the impact of age on EPA/AA ratio in each arrhythmia group.

Results: EPA/AA ratio in patients with lethal VA (VT and VF) was significantly lower than those with other arrhythmia and control subjects (EPA/AA 0.3±0.19 (percent)), but not with lethal VA (0.4± 0.35 (control patients); P=0.01). But, general risk factors of cardiovascular disease (CAD) were not different between patients with lethal VA and other patients. Especially, in patients with VF without organic heart disease, EPA/AA ratio was the lowest among all patients (0.2±0.08). But these patients had significant lower risk factors of CAD than patients with other arrhythmia. Low EPA/AA ratio might be a cause of the occurrence of not only ischemic but also non-ischemic VF patients. Especially, low EPA/AA ratio is closely related in patients with VF without organic heart disease.

Among patients with paroxysmal AF, adults <60 years who have little risk factors for atherosclerotic diseases significantly lower EPA/AA ratio than that did elderly adults 60s (0.3±0.19 vs. 0.46±0.27, P<0.01). Such an age-related difference in the EPA/AA ratio was not found in patients with chronic AF.

Conclusion: Low EPA/AA ratio will be a novel strong predictor for occurrence of VF and paroxysmal AF in patients without organic heart disease.

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Impact of unsaturated fatty acids on prediction of paroxysmal atrial fibrillation - importance of eicosapentaenoic acid to arachidonic acid ratio

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P5584 I BEDSIDE
Impact of unsaturated fatty acids on prediction of paroxysmal atrial fibrillation - importance of eicosapentaenoic acid to arachidonic acid ratio

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Left ventricle function, measured as LVEF, is the only accepted non-invasive stratification method in patients after myocardial infarction (MI) eligible for ICD implantation. Other, ECG-based or Holter-based techniques such as arrhythmia duration (QT) or dynamicity (QT/R), and heart rate variability (HRV), may be considered to improve the risk stratification.

The purpose of this study was to assess the usefulness of Holter-based parameters in the prediction of the ICD appropriate interventions in the patients with remote myocardial infarction, untreated with amiodarone, with ICD implanted as primary or secondary prevention of SCD.

The study population consisted of 1141 patients. All clinical data and Holter recordings were collected before ICD implantation, there were no patients treated with amiodarone. The following, Holter-based parameters, were used: number of premature ventricular contractions (PVC), the presence of nVFT episodes, standard deviation of all RR intervals (SDRR) as a measure of HRV, repolarization duration (QTc - correction with Bazett’s formula) and QT/R slope. The study population fulfills a half marathons. No episodes of any type of appropriate ICD delivered therapy was used as the endpoint of the study.

Appropriate ICD intervention (ARYT) occurred in 64 patients (62 males, secondary prevention in 51 pts. LVEF: 39±12%, age: 66±9 years; ARYT+), and 50 patients were free of malignant ventricular arrhythmias during the follow-up period (46 males, secondary prevention in 24 pts. LVEF: 36±8%, age: 63±8 years; ARYT-). ARYT+1) were older and had lower LVEF compared with ARYT- patients with lethal VA and others. Especially, in patients with VF without organic heart disease, EPA/AA ratio was the lowest among all patients (0.2±0.08). But these patients had significant lower risk factors of CAD than patients with other arrhythmia. Low EPA/AA ratio might be a cause of the occurrence of not only ischemic but also non-ischemic VF patients. Especially, low EPA/AA ratio is closely related in patients with VF without organic heart disease.

Among patients with paroxysmal AF, adults <60 years who have little risk factors for atherosclerotic diseases significantly lower EPA/AA ratio than that did elderly adults 60s (0.3±0.19 vs. 0.46±0.27, P<0.01). Such an age-related difference in the EPA/AA ratio was not found in patients with chronic AF.

Conclusion: Low EPA/AA ratio will be a novel strong predictor for occurrence of VF and paroxysmal AF in patients without organic heart disease.