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Country:	Italy
Titel of the project:	VO2 and cardioembolic risk

Project details

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The cardiopulmonary stress test, by means of an evaluation of the gas kinetics, may be construed as a stratification method of thromboembolic risk in decompensated elderly patients. New parameters that may be useful for the implementation of the current risk scores on which the current indications for oral anticoagulation therapy are based (ACT), may be established.

Atrial fibrillation is the most important independent risk factor for ischemic stroke. The use of vitamin K antagonists, although they are a major part of the current guidelines, and up to today greatly reduced in the real world, especially in the elderly, due to poor management of these drugs that involve frequent hematochemical monitoring of the INR, and have several interactions with other drugs and foods. Faced with such evidence, however, one should take into account why 20% of strokes is on a cardioembolic basis, of which the majority occurs in elderly patients with non-valvular AF. Establishing which fibrillation patients should be started on ACT represents a critical time for the doctor, who, on the basis of current risk scores of thromboembolic risk (CHADS2 and CHADS2VASc) and bleeding risk (HAS-BLE bleeding risk) must consider carefully the risk/benefit relationship. Therefore, it would be advantageous to evaluate further instrumental markers for the risk stratification of thromboembolism as those derived from the kinetics of exhaled gases that may indirectly shed light on the mechanisms that favor the onset and maintenance of arrhythmia, and then, in evaluate in a predictive manner, the risk of developing atrial fibrillation in the decompensated patient. So far, few studies have considered the kinetics of oxygen consumption in the risk stratification in decompensated elderly patients. The purpose of this study is to evaluate the kinetics of oxygen consumption in 2 different groups of patients suffering from chronic heart failure (CHF) (FE <40%) and randomized according to age. A first group of patients with CHF with permanent atrial fibrillation (group A) and a second group with sinus rhythm (group B). The patients shall undergo a maximum ramp cardiorespiratory stress test. Maximum VO2 (VO2max) is defined as the value of VO2 measured when, despite a further increase in the workload, the O2 consumption no longer increases and remains constant. In a clinical setting, differently from the healthy person and the athlete, the VO2max is rarely reached. For this reason, in the analysis evaluation, it is replaced by the peak VO2, defined as the highest VO2 achieved. Another parameter that we will consider is the oxygen pulse, i.e. the ratio between V. O2/FC, which is an index of cardiac performance. The oxygen pulse is given by: systolic volume × C(av) O2. It is often mistakenly used as a surrogate of systolic volume. The oxygen pulse increases especially in the first part of the exercise and, to a lesser extent or even zero, in the second part of the exercise. In fact, in the second part of the exercise, the increase in the GC is a function primarily of the increase in FC. The "cardiac power, calculated from the product of V. O2 and the systolic blood pressure, is also used as an indicator of the performance of the left ventricle. Recently, this parameter has been assigned a strong predictive power in case of chronic heart failure.

Audience

Type

- AF Patients

Location

Italy, Europe