

Letters to the Editor

Comments on the Usefulness of Echocardiography in Preparticipation Screening of Competitive Athletes



Comentarios a la utilidad del ecocardiograma en la revisión preparticipativa de deportistas de competición

To the Editor,

First of all, I would like to congratulate Grazioli et al¹ for their contribution to the needed research in the field of sports cardiology, and I say *needed* because it is a very complex issue that has more unknowns than answers. I think that the advisability of including or excluding tests from a preparticipation screening program is highly controversial; for this reason, I was struck by the one-sidedness of the authors' views and their categorical conclusions. I do not intend this to be a criticism of the article; rather, I wish to reflect the controversy that, in fact, exists but is not referred to in the publication. Thus, I will address questions relative to the prevention of sudden cardiac death and those cases that have undergone some type of intervention, not cases involving minor findings that undergo follow-up.

Echocardiography is of undoubted value in the diagnosis of silent heart disease. This technique has an unquestionable ability to detect conditions that go unnoticed in basic preparticipation screening (family and personal history, symptoms, physical examination, and electrocardiogram). That is precisely where the danger lies.

Among the most illustrative examples are the anomalies in the origin of the coronary arteries: in this context, the diagnostic potential of echocardiography is frightening. The sensitivity of the new echocardiographic systems for the identification of the origin of the coronary arteries in athletes is higher than 95%. On the basis of currently available data,² the incidence of anomalous origin of the right coronary artery arising from left coronary sinus is roughly 6-fold higher than that of anomalous origin of the left coronary artery arising from the right coronary sinus. There are very few reports of sudden cardiac death in asymptomatic individuals with anomalous origin of the right coronary artery, and the immense majority of the sudden cardiac deaths associated with coronary anomalies are due to anomalous origin of the left coronary artery (in the major registries, the proportions are 21:0 and 14:1). Such a low incidence of anomalous origin of the right coronary artery among deceased patients, when the prevalence among asymptomatic patients who remain alive is so high, even suggests the possibility of an incidental association. However, both the European and United States guidelines agree on disqualifying both types of individuals from competition with no distinctions, unless they have undergone surgical correction, with negative postoperative tests for ischemia detection. The authors of a study evaluating the results of the surgical repair of anomalies of the origin of the coronary arteries report that, 15 months after the intervention, 50% of the patients treated for anomalous origin of the right coronary artery had signs of ischemia vs 10% among the patients with anomalous origin of the left coronary artery. These data make it highly tempting for operators to look for the origin of left coronary artery when performing an echocardiogram, but systematic screening for anomalous origin of the right coronary

artery (an entity that appears to be benign in most cases but that, nevertheless, has so many implications) can have very negative consequences.

In addition, the description of the basic preparticipation screening in those patients who underwent some kind of intervention (disqualification or treatment) is not clear. The authors report the detection of negative T waves that, in one of the patients with hypertrophic cardiomyopathy, would have led to the performance of echocardiography in any case. They do not mention whether or not there were symptoms, a medical history or findings of abnormalities such as *pectus excavatum*, possible murmurs associated with patent *ductus arteriosus* or pulmonary stenosis, increases in intracavitary electrical activity in atrial septal defect, etc., which would also have led to the performance of an echocardiogram. This lack of information could give rise to a biased view of the true contribution of systematic echocardiography as a part of preparticipation screening.

Strategies aimed at increasing the sensitivity of the screening program only contribute to the conflict created in its day by the electrocardiogram, which to date remains unresolved. Any measure aimed at increasing sensitivity for the timely detection of such an uncommon problem as sudden cardiac death in sports systematically increases the number of athletes labeled as not being fit for competition who had never been at risk of dying. It is easy to be taken in by the illusion that saving a life is priceless but, in fact, it does have its costs. There is the risk of impinging upon many lives for each life saved; that is, if that life is actually saved. For better or for worse, there is no way of measuring the relative importance of each.

By way of reflection, it occurs to me to consider that, when we are in the process of searching for heart disease, and are running the risk of making a mistake in our zeal, it should be the interested party, the athlete, who has the last word, having been fully informed of what we do and do not know. Preparticipation screening continues to be a medical approach that can involve hazards for which informed consent is often considered necessary.

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