Atrial Septal Defect and Pulmonary Hypertension in Professional Soccer Player

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This study reports a rare case of late diagnosis of atrial septal defect (ASD) with pulmonary hypertension (PH) through two-dimensional echocardiography (ECHO) in a professional soccer player who resumed high-performance sports activity after surgery.

Introduction

Atrial septal defect (ASD) is characterized by the presence of a communication between the atria due to discontinuity in the atrial septum and is classified as a congenital heart defect with increased pulmonary flow[1]. Most patients are asymptomatic, with indication of surgical or percutaneous intervention in the first years of life[2-4].

The recommendations of the last document by Bethesda[2] for physical activity and sports in individuals with ASD consider two distinct groups, i.e., those surgically treated and untreate[d]. For those not treated, the presence of a small septal defect without pulmonary hypertension (PH) does not contraindicates participation in any competitive sport. Those individuals who have significant PH and/or right to left shunt, symptomatic ventricular or supraventricular arrhythmia and significant mitral regurgitation should only engage in activities classified as IA Class (light static and dynamic components).

Patients treated surgically or by percutaneous intervention, six months after repair and clinical and laboratory evaluation with no evidence of PH, symptomatic arrhythmias or myocardial dysfunction, are allowed to practice any competitive sport.

Purpose

Report the importance of echocardiogram in late diagnosis of ASD with PH in professional soccer player who returned to high-performance competitive sports after surgery.

Key Words:

Heart defects, congenital; heart septal defects, atrial; hypertension, pulmonary; echocardiography, Doppler; soccer.

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Case Report

Male patient, 22 years old, professional soccer player, asymptomatic, presented pre-season physical examination, electrocardiogram at rest and maximal exercise testing without abnormalities. Transthoracic echocardiography examination showed ASD with moderate PH (systolic Pulmonary Artery Pressure (sPAP) estimated at 56 mmHg), and moderate overload on right chambers and bidirectional shunting. These findings were confirmed by transesophageal echocardiography.

The patient underwent surgery for right lateral thoracotomy, evolving without complications in the postoperative period. One month after surgery, the patient performed transthoracic echocardiography with moderate dilation on the right ventricle (36 mm) and aPAP estimated at 37 mmHg. The stress echocardiogram was effective and revealed maximum sPAP estimated at 43 mmHg at peak stress, with no additional dilation of the right ventricle or contractile deficit. In the cardiopulmonary test, the patient reached 197 bpm with maximum VO_2 of 64.31 ml/kg.min no changes suggesting inexpressive ischemia and arrhythmias (five isolated ventricular extrasystoles). The 24-hour Holter revealed only five isolated supraventricular and ventricular extrasystoles. After eight months, the new transthoracic echocardiography and maximal exercise testing revealed no changes. The patient was then allowed to practice sports in a gradual and progressive way after follow-up of 24 months.

Discussion

This is a case with late diagnosis of congenital heart disease that was only done after pre-participation evaluation.

There is no consensus in literature about which tests are required for pre-participation evaluation in athletes. Echocardiogram is not always part of the diagnostic resources.

The American Heart Association recommend only examination of medical history (family and personal history) and clinical examination while the consensus of the European Society of Cardiology includes 12-lead electrocardiogram preferably performed by a specialist in cardiology or sports medicine[1]. In Italy, since 1971, there is a specific federal legislation requiring the implementation of prior medical

evaluation for all competition athletes, but only in 1994 the echocardiogram was added to the assessment for professional soccer players, boxers and cyclists[1,5,6]. In Norway, professional soccer players, and in Germany and in France, all professional athletes are also assessed by echocardiogram before participating in competitions[7].

Conclusion

This case demonstrated the importance of this examination in competition athletes, because after the determination of history, physical examination, electrocardiogram at rest and stress electrocardiogram the patient showed no changes. The disease involved was only diagnosed after the performance of echocardiogram.

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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Study Association

This study is not associated with any post-graduation program.

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