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Cardiovascular Emergencies

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CHAPTER KEY WORDS

- Comotio cordis
- Hypertrophic cardiomyopathy
- Supraventricular tachycardia
- Wolff-Parkinson-White syndrome

CHAPTER SCENARIO

A 20-year-old male college basketball player collapses during a game while running down the court. He then appears to have seizure-like activity, with occasional gasping for air. He had a preparticipation physical before the season, with no concerning findings, and he has no family history of sudden cardiac death or arrhythmias.

The basketball player was assumed to be in cardiac arrest due to the sudden collapse and irregular breathing; thus, the athletic trainer started cardiopulmonary resuscitation (CPR) immediately. Another staff member at the school retrieved the automated external defibrillator (AED), and, after placement of the pads, a shock was recommended. The athletic trainer administered the shock and immediately resumed CPR. In 2 minutes, a pulse check revealed a bounding femoral pulse. The player soon began breathing on his own.

SCENARIO RESOLUTION

Upon emergency medical services (EMS) arrival, an electrocardiogram (EKG) was obtained that showed prominent Q waves in multiple leads and criteria for left ventricular hypertrophy. Given the clinical situation and EKG findings, hypertrophic cardiomyopathy was suspected. The player was transferred to the hospital, and, after further evaluation by the cardiology team, he had successful placement of an implantable cardioverter defibrillator (ICD) with no further episodes of syncope or cardiac arrest.

INTRODUCTION

This chapter will discuss cardiovascular emergencies that are common or important causes of death and disability in athletes. The focus is on sudden cardiac arrest (SCA), including both congenital and acquired causes, the importance of immediate recognition, and the principles of management. The impact of exercise on short- and long-term cardiovascular health is discussed. Finally, the chapter reviews the most common cardiac dysrhythmias that cause symptoms or sudden death in athletes.