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Review Article

Current Medicolegal Issues in Sports Medicine

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ABSTRACT

Sports physician and trainers must be at their toe-tip to plan and provide safety medical measures and to limit injury at the site of practice. Every year, a small number of athletes die from cardiovascular problems. Sudden cardiac death represents perhaps the most tragic event seen in an athletic setting, particularly because the victim generally is a seemingly healthy, young athlete. This article focuses on several medical issues that can result in death of the athlete and therefore the potential for medicolegal action against the healthcare team. Regarding medical conditions of the athlete, special emphasis will be focused on cardiovascular and neurological manifestations.

Key Words: Medicolegal issues, sportmedicine, athletics, sudden cardiac death, heat illness, concussion

INTRODUCTION

Physicians, athletic trainers, and coaches are responsible for the health of the athletes. The team physician and trainer must be prepared to identify and plan for medical care and services that promote the safety of the athlete, limit injury, and to provide medical care at the site of practice or competition. [1] Individual treatment is predicated on the specific facts and circumstances presented to the physician at the event and adequate insurance should be in place to help protect the physician, the athlete, and the sponsoring organisation.[1] This article will focus on several conditions that can result in serious injury of the athlete or even death, and therefore the potential for medicolegal action against the healthcare team. Regarding medical conditions of the athlete, we will discuss cardiac arrest, heat illness, and concussion.

CARDIAC ISSUES

Every year, a small number of athletes die from cardiovascular problems. Sudden cardiac death represents perhaps the most tragic event seen in an athletic setting, particularly because the victim generally is a seemingly healthy, young athlete. Sudden cardiac death is defined as a nontraumatic, nonviolent, unexpected event resulting from cardiac arrest within 6 hours of a previously normal state of health.[2] Some of the most common causes of sudden cardiac death among atheletes are hypertrophic cardiomyopathy (36%), coronary artery anomalies (19%), and increased cardiac mass not diagnostic of hypertrophic cardiomyopathy (10%).[2] The remaining causes include ruptured aorta, aortic stenosis, myocarditis, coronary artery disease, and mitral valve prolapse. As the most common cause of cardiac death in athletes, hypertrophic cardiomyopathy is well documented in medical literature. Hypertrophic cardiomyopathy is an inherited disorder in which there is hypertrophy of the left ventricle with no known cardiac or systemic causes.

Hypertrophic cardiomyopathy is uncommon with an incidence of one in 500 people.[3] Unfortunately, sudden cardiac death often is the only indicator of hypertrophic cardiomyopathy.

If athletes with hypertrophic cardiomyopathy are symptomatic before a fatal event, their symptoms may include, but are not limited to, syncope, palpitations, and chest pain during periods of heavy exertion.[4] There are two forms of hypertrophic cardiomyopathy, obstructive and nonobstructive. The nonobstructive form is the most

common, accounting for 75% of all cases.[5] On physical examination, detection is difficult because there is no murmur or only a soft murmur.[6] The obstructive form of hypertrophic cardiomyopathy is more likely to be associated with a murmur because of an outflow gradient made between the thick ventricular septum and the mitral valve. The electrocardiogram may not be helpful because well-conditioned athletes and those with hypertrophic cardiomyopathy have tracings consistent with left ventricular hypertrophy. Therefore, the use of electrocardiogram as a screening test could create many false positives. Echocardiography is the golden standard for diagnosis of hypertrophic cardiomyopathy.

CONCUSSION

The most common head injury in sports is concussion, occurring in an estimated 300,000 athletes per year.[7] Concussion, or mild traumatic brain injury can be defined as any alteration in cerebral function caused by a direct or indirect force transmitted to the head with or without loss of consciousness.[8,9] Common symptoms and signs of concussion include: loss of consciousness, light-headedness, vertigo, cognitive and memory dysfunction, tinnitus, blurred vision, difficulty in concentrating, amnesia, headache, nausea, vomiting, photophobia, balance disturbance, numbness, insomnia, slow response to questions, personality change, depression, and lethargy. These symptoms may be immediate or have a delayed onset.[7,9,10]

Although most concussions are minor, some can be serious. Head injuries account for 19% of all nonfatal football injuries[11] and an average of eight deaths per year in football players. Athletes face the risk of permanent neurologic impairment and death if they return to competition prematurely.[9,12] Sports medicine professionals are at risk for litigation if reasonable guidelines are not followed when deciding as to when an athlete may return to competition. Medical personnel should follow objective measures when evaluating a head injury to ensure the safety of the athlete.

RETURN TO PLAY

Return to play depends on numerous variables such as the severity of the concussion, the number of concussions the athlete has sustained in the past, and the time that has elapsed between a previous and current concussion. If the athlete returns to play before the central nervous system

has recovered, second-impact syndrome may occur if there is another trauma to the brain. This second trauma may be relatively minor, but can result in diffuse cerebral swelling and sometimes death.[7,9,13] Finally, it is the physician's responsibility to inform the athlete in simple language of all potential risks in returning to competition. Failure to disclose important information regarding the athlete's condition may result in a judgment against the physician.

HEAT ILLNESS

Recent well-publicised heat-related deaths of athletes have raised the awareness of heat illness among coaches, trainers, and team physicians.[14] Heat stroke is the third most common cause of death behind cervical spine injuries and cardiac conditions in high school athletes in the United

States.[15] There are many factors that contribute to heat production and loss, including temperature, humidity, sun exposure, wind, and equipment.[16] Awareness of the factors contributing to heat illness provides the sports medicine staff opportunities to modify the risks liable to be faced by the athlete. Heat illness is a spectrum ranging from mild heat edema to life-threatening heat stroke. The least common, but most dangerous of the heat illnesses, is heat stroke. This is defined as an increased core temperature greater than 40°C with an altered mental status.[17] Heat stroke occurs when heat production exceeds heat dissipation. The hyperthermia can cause multisystem organ failure and disseminated intravascular coagulation, which may lead to death.

The key to treatment of heat illnesses is prevention. Planning, education, and communication among medical staff ensure that appropriate, prompt medical care is available when needed. Second, athletes and coaches should be educated regarding prevention, recognition, and treatment of heat illnesses. Third, preparticipation physicals should include a careful review of the athlete's medical history to identify those at risk for heat illness.

DISCUSSION

This article has discussed several conditions that can result in serious injury of the athlete or even death, and potential medicolegal action against the healthcare team. It is important to document complete and thorough preseason and postinjury histories, examinations, and appropriate studies to protect the athlete and healthcare providers from negative consequences. Team physicians and other members of the athletic healthcare team can be held liable for failure to diagnose and treat injuries based on reasonable guidelines that are available from professional medical associations.[18] The evaluation and treatment of cardiac arrest, concussions, heat illness should be well known to the sports medicine provider. It is particularly important that the sports healthcare team implement well-established protocols for the emergent care of athletes that are practiced on a regular basis.

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