Brain Injuries in Football

The overall decline in fatalities directly due to football injury for the past ten years has been reassuring. However, the Annual Survey of Football Injury Research 1931-1986 from the American Football Coaches Association (described on page 63) should remind us that not all of the problems in this area are solved. The 1986 season’s 12 direct fatalities are the most since 1976, as is the 0.85/100,000 incidence rate in high school players. Nine of the 12 fatalities were due to brain injuries; eight of the nine occurred in high school players.

The cases described in Section IV of the survey indicate that two high school players who died from head injuries had suffered concussions a few weeks earlier in the season. Another player had been taken to the hospital for a head injury after his final game in 1985. On September 26, 1986, he collapsed on the sideline after having participated only in the kickoff of a game. He died on October 15 at the age of 16. Among the other six fatalities, a 17-year-old collapsed on the sideline, complaining of severe headache; he died the next day. A 16-year-old collapsed two minutes before halftime and died later from brain injury. Another 16-year-old complained of headaches after a game on October 31 and died ten days later from brain injury. A 19-year-old college player collapsed on the practice field after receiving a blow to his head during a three-quarter speed drill. He died of a subdural hematoma five days later. Of these four players, the three who collapsed on the field had suffered a concussion associated with a brain injury that proved fatal. We don’t know if the two events occurred simultaneously. The fourth, who complained of headaches after the game, certainly had a concussion, but the sequence of events that led to his death is not detailed in the case description.

A concussion is an event that is not a specific diagnosis, because it may occur in connection with several different types and degrees of brain injury. It is not a symptom, but is accompanied by symptoms such as light-headedness, headache, loss of consciousness for variable periods of time, and, usually, temporary amnesia. Objective findings such as change in pupil size, increase in pulse rate, falling blood pressure, and seizures depend on the location and extent of brain injury.

Rimel et al. found that such events may be followed for weeks or months by symptoms and disorders of brain function that can be measured objectively. Gronwall and Wrightson found that persons who have sustained concussion show a reduced information-processing ability and took longer to recover following a second concussion than controls who had sustained only one concussion. Thus, a cerebral concussion is a serious event that is indicative of an injury to the brain, and it should be taken very seriously.

We must be more alert to the occurrence of concussion in a football player during practice or play, get him off the field to determine the nature and extent of accompanying brain injury, and manage the injury appropriately. Additionally, if we are to reduce (and perhaps eliminate) fatalities due to brain injury, we must make serious efforts to determine whether athletes who have sustained concussions may be susceptible to further, more serious brain injury, and whether they should continue to play football.

References