Catastrophic Soccer Injuries in High School and College

Lyann Le

Background: Catastrophic sport related injuries and exertional/medical conditions are defined as events that resulted in fatality, permanent disability, severe injuries where the athlete was paralyzed, and conditions such as heat stroke and cardiac arrest. This study will compare injuries presented to the emergency department and catastrophic injuries among high school and college age athletes.

Methods: Catastrophic and severe soccer injuries were collected from two surveillance systems: the National Center for Catastrophic Sport Injury Research (NCCSIR) and the National Electric Injury Surveillance System (NEISS). Within NCCSIR, catastrophic soccer events for high school and collegiate athletes were from 1982 to 2020. NEISS data was queried to find soccer injuries reporting to the ED from 2001-2020 for high school (age 14-18) and college (age 19-22) populations. All body parts and diagnosis codes were selected in building the query. Dispositions that were selected included patients who were treated and transferred to another hospital, treated, and admitted for hospitalization (within same facility), held for observation (within same facility), and death. Locations that were unknown, at home, or public property were excluded. Cases were further limited to severe injuries according to NCCSIR's definition of catastrophic. SPSS Statistics 27 was used to calculate descriptive and inferential statistics for each variable with the predetermined alpha level of 0.05. Chi-square tests determined the differences of each variable (sex, mechanism, injury type, outcome, etc.) by player level (high school or college).

Results: There were 104 catastrophic injuries identified within NCCSIR's database. Soccer action varied by player level ($p=0.02$) where goal tending was most frequent in high school and heading the ball was more frequent in college players. Common injuries varied by player level ($p=0.02$) where head injury (19%) was more common in college players compared to high school players (9.5%). There were 104 severe injuries identified within NEISS's database, which translates to an estimated 2,670 injuries nationally. Body part varied by player level where head injury was most frequent in college players (29.8%) and face injury was most frequent in high school players (19.8%). 91.0% of NEISS injuries and 28.8% of NCCSIR's injuries were due to collisions (contact with another player, object, or ground/surface).

Discussion: Goal tending showed significant differences by player level, where there were almost twice as many injuries in high school compared to college. Injuries due to heading the ball were more frequent in college compared to high school but head injuries overall were more frequent in high school compared to college. These higher frequencies within college players may be due to the highly competitive nature, pressure, and intensity of playin college. These patterns may be an indication that there may need to be more access to athletic trainers in high schools during practices and competitions to help prevent injuries and allow athletes to be treated on site.