How Physicians are Managing Concussions in Connecticut

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SINCE the turn of the century a strong emphasis has been placed on concussion. More publications on sports-related concussion have appeared since 2000 than in all previous years combined.[1] In addition to the research being done on this injury, numerous articles by the lay press on concussions have increased public awareness. On the professional level, the National Football League (NFL) in 2009 changed its practices on concussion management after several highly-publicized cases of long-term sequelae following multiple concussions were brought to light. Findings from researchers at Boston University also demonstrated the physical changes in the brain of deceased players who had apparently suffered from traumatic encephalopathy. The NFL is currently reviewing concussions and how they affect their players. Changes in the manner in which concussions are managed are not limited to the professional level. The State of Washington passed the Lystedt Law[2] legislating that high school and younger athletes who receive a concussion must be seen and cleared by a physician prior to returning to play. Connecticut, during its current legislative session, passed a similar piece of legislation and several other states are likely to follow. These changes in concussion management are positive steps and demonstrate the need for all individuals caring for athletes to understand and appreciate the management principles as they have evolved.

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One specific recent development in concussion management has been the acceptance of neurocognitive testing. Neurocognitive or neuropsychological (NP) testing has been used at the professional level for years and is now available for younger athletes. The development of internet based commercial programs with large databases now allow improvements in concussion management and, specifically, the return to play of athletes following concussions.[3]

The increased understanding of and awareness of concussions has led to many changes in the practice of concussion management. It is our impression that these changes are not fully appreciated by physicians in Connecticut. We also believe that these physicians are not aware of and therefore not utilizing neurocognitive testing when managing concussions. In order to better understand concussion management practices in Connecticut, we surveyed physicians in the State of Connecticut in regard to concussion management.

Methods

After obtaining (IRB) approval, we created a survey instrument (Appendix A) and mailed it to internists, pediatricians and family-practice physicians in Connecticut who were in the Connecticut Children's Medical Center data base. A total of 852 surveys were mailed and later a single repeat mailing as per our protocol. The anonymous responses were entered into a database and analyzed utilizing SPSS software.

Results

We received 342 of the 852 surveys mailed (response rate of 40%). The individual responses to the survey questions are noted in Table 1.

We found that 59% of physicians were utilizing grading systems. Thirty-seven percent seldom refer a patient

out to either a neurologist or a concussion specialist and 51% said they sometimes refer out. Sixteen percent typically see a concussion patient for one visit, while 77% will see a patient an average of two to three times during the course of a concussion with only 7% responding that they would see a patient four or more times. Thirty six percent recommend athletes to stay out of a school for a period of time and 27% indicated that they suggested concussed patients could return on a limited basis. Further, most physicians (77%) recommended that patients go home if symptoms were present while at school, and 85% recommended patients return to school—if they were kept out—when symptoms resolved.

Regarding our second hypothesis about the use of neurocognitive testing we found that 30% utilized these tests to assist in the management of concussed patients. Seventy-four percent were aware of neurocognitive testing (NCT).

Discussion

In 2001 the First International Conference on Concussion in Sports was held in Vienna[4] and the second international conference in 2004 in Prague.[5] These conferences were assembled to develop a better management approach to concussion by incorporating the most current knowledge available. Prior to 2001 the primary guiding principles on concussion management came from the position statement put forth by the American Academy of Neurology published in 1997.[6]

These two conferences made multiple recommendations. They worked to reduce the confusion regarding concussion management and reduce the health risks associated with them. Prior to the conferences there were over 10 grading scales in use with all allowing return to play within the same contest if the athletes' symptoms resolved within a specified time frame—usually 15 minutes. The Prague statement continued the support of the Vienna recommendations that injury grading scales be abandoned in favor of combined measures of recovery to determine injury severity (and/or prognosis) and individually guide return-to-play decisions.[5] Further, the conferences strongly urged that athletes suffering a concussion not be allowed to return to play on the same day, regardless of symptoms or absence thereof after a brief waiting period. This recommendation was based upon scientific data demonstrating that following even the slightest concussion, evidence of mental deficits continue for as long as 36 hours though they might not be recognized on the sideline during the game.[2]

Neurocognitive testing or neuropsych testing is becoming common practice now in managing concussions. Once again, the Vienna and Prague conferences recommended that NCT be a part of concussion management but not a sole factor in making return-to-play decisions.[2,5] NCT allows a patient's current brain status to be evaluated in an objective manner with tools that have been tested as valid and reliable. Adopting NCT in a concussion-management program will assist the evaluating physician in making return-to-play decisions with objective data, not simply relying upon the subjective information from the patient.

Finally, the conferences emphasized the importance of rest—both physical and mental—to allow patients to recover fully from their concussions. Treatment protocols that are currently being adopted all emphasize the importance of brain rest. It is becoming common practice within the field of concussion treatment that allowing the brain time to rest will allow the symptoms to decrease or resolve at a faster rate. It has, for the most part, been accepted that allowing an athlete to rest by not returning them to play is common practice. Recent treatment models not only include physical rest when managing a concussion; cognitive rest is just as important. The only way we can insure brain rest is to keep the injured athlete home from school because school activity increases the usage of energy by the brain and in most cases increases the headaches associated with concussion.

The results of this study do reveal a few interesting facts regarding concussion management in the State of Connecticut. First, while a majority of respondents felt comfortable treating concussions, 59% currently utilize grading scales. This may indicate a need for further education on current concussion-management practices. While many physicians are aware of NCT, only 30% of physicians surveyed reported that they currently use NCT as part of their routine evaluation. It was not asked whether or not they measure cognitive return as part of their management. It seems that physicians should make it part of their practice to measure the return of cognitive ability prior to returning athletes back to play. Finally, we are concerned about the number of visits utilized to determine whether an athlete has recovered from his/her concussion. Although there are not a specific number of visits, if a doctor wants to insure a patient has fully recovered one would want to see them until there is proof that they have fully recovered, not settle for only a single visit as many respondents indicated they did.

Conclusion

Concussion treatment is evolving; the more we learn about concussions the better the standard treatment models will become. This survey shows that although pediatricians seem comfortable managing concussions, their treatment practices need to be updated. Treatment models need to be individualized to the patient/athlete. It is essential that the patient be fully recovered before returning to activity.

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