

Family physicians can champion sport-related concussion management

It's about time

James D. Carson MD DipSportMed CCFP FCFP Alexandra Rendely MD DipSportMed CCFP
Julia Warden MD FRCPC Andrew Arcand MD Constance M. Lebrun MD DipSportMed CCFP

Following a lecture earlier this year at the 5 Chiefs Family Medicine Clinic Day in Toronto, Ont, on return to learn (RTL) after sport-related concussion (SRC), an FP approached the speaker to discuss a case. This story, all too familiar, detailed a student's journey following a head injury. She was assessed by health services at a large university and was diagnosed with "just a concussion." She was offered no support, no return-to-play (RTP) strategies, and certainly no RTL plan. The student struggled through many weeks of classes with poor concentration, angst, and a disrupted sleep pattern. The added stress of possibly losing the entire semester as a result of this injury caused further health problems. The physician who told the story felt the pain acutely. She was the student's mother.

Intense media coverage of hockey star Sidney Crosby's SRC in January 2011 sparked much-needed interest in SRC management strategies. We believe that this issue of *Canadian Family Physician* will ignite a new FP-driven paradigm shift in concussion management, with improved SRC patient outcomes as a result. The focus is to discover those 10% to 20% of patients in whom recovery is delayed beyond the typical 7- to 10-day period.¹ Once these patients are identified, strategies can be implemented to resolve their persistent symptoms. This is entirely within the grasp of FPs, as FPs can see patients on a timely basis following an injury and can manage cases effectively. The collection of articles in this issue of *Canadian Family Physician* emphasizes the need for primary care physicians to embrace best practices, particularly current RTL strategies, and to seek a common understanding for more effective management of SRC. Family physicians need to lead a team-communication approach² for the best SRC patient outcomes in the shortest time possible.

Ideally positioned

In this issue a pair of related studies from Ontario^{3,4} investigate why the medical community, educational community, and sports organizations have perhaps struggled to get onto the same page with respect to SRC management. The first study (page e310) looked at the scope of concussion using a chart review. It found that

in 43.5% of the cases of SRC, the athlete returned to sport too soon, and 44.7% returned to school too soon.³ The second study (page 548) looked at a validated survey of FPs, emergency physicians, and pediatricians and noted that knowledge transfer was challenging and that information was not being adopted consistently.⁴ A previous small survey of FPs in Alberta and in North and South Dakota had similar findings.⁵ It appears that concussion management is a challenge for physicians in terms of knowing what to say, whom to refer patients to, and how best to assist patients. More targeted knowledge transfer of evidence-based guidelines is necessary.

Family physicians are optimally suited to improving SRC management because of our 4 principles of family medicine: FPs are skilled clinicians, we are a resource to a defined practice population, and we practise a community-based discipline in which the patient-physician relationship is central. Family physicians can use these 4 principles to optimally manage what amounts to a temporary disability—the SRC. The FP is an expert in facilitating access to and leveraging other community resources. This is important because managing a SRC can focus upon the whole patient and the determinants of health—if given enough time.

Fifteen years ago, Canadians spearheaded a change in SRC management owing to a lack of evidence that rendered previous grading protocols obsolete.⁶⁻⁸ A practical approach was implemented, rooted in an individualized 6-step RTP protocol, not based upon the patient's initial presentation. This led to the formation of the Concussion in Sport Group (CISG), which has since held 4 international conferences (with the most recent in 2012), aiming to create consensus on management and useful diagnostic tools.¹ The latest versions are the Sport Concussion Assessment Tool, version 3 (SCAT3), and a new SCAT3 designed specifically for children (ChildSCAT3). Although there has been some reasonable critique,⁹ each tool developed by the CISG has generally been highly regarded by the sport medicine community, yet this has not translated into consistent use in the clinical setting in FPs' offices, perhaps because of the perceived barrier of the time required to administer the tool.

Similar implementation difficulties have occurred in the emergency department (ED). Patients, their families,

Cet article se trouve aussi en français à la page 515.

and their FPs assume that emergency physicians give comprehensive SRC management advice, but time dictates otherwise. The focus in the ED is on ruling out a severe traumatic brain injury. However, attempts to add tools like the SCAT3 in the ED setting might be set up for failure. Without the appropriate incentives or additional clinical supports, performing an intensive SCAT3 would compete with other important and urgent ED tasks. Ideally, SRC champions in hospital EDs would be important, as any new ED initiative or change of practice needs to come from within. However, data from the chart review study in this issue of *Canadian Family Physician*³ showed that only 26.5% of SRC patients went to the ED. If only 26.5% seek medical attention from EDs and only 10% to 20% of those will have delayed symptom resolution, is it worth the effort when various other processes in the ED demand more time and are higher priority?

In-office management

So what is enough time to manage an SRC in the family practice setting? To be effective, we need to allot 30 minutes for a first appointment when SRC is suspected. We must correctly diagnose the concussion, starting with the self-report portion of the SCAT3 or ChildSCAT3, completed by the patient before the FP goes into the examination room. A differential diagnosis should exclude all other mechanisms of injury before definitively diagnosing an SRC. A headache alone might indicate a cervicogenic headache, as concussionlike symptoms can occur with whiplash injury. Complicating the picture, in many cases both concussion and whiplash injury have occurred. Additionally, pre-existing medical conditions such as affective disorders⁹ or learning disabilities must be taken into consideration during the initial visit.

After the diagnosis of an SRC is made, both the patient and the parents must be educated. Concepts of cognitive and physical rest must be comprehensively discussed and explained, and patients should be advised that the CISG consensus suggests a gradual return to activity in a manner that does not result in exacerbation of symptoms.¹ The RTL plan should be almost complete before any RTP steps occur. The school principal should be advised that the patient has a temporary disability and cannot complete assignments or tests until symptoms have improved substantially. Signed letters requesting appropriate accommodations at school are often helpful. The 6-step RTP protocol must be outlined in detail, so that when the patient becomes reasonably symptom free, RTP can safely commence. Links to the ThinkFirst website for RTP (www.parachutecanada.org/thinkfirstcanada)¹⁰ and Nationwide Children's Hospital website for RTL (www.nationwidechildrens.org/concussions-in-the-classroom)¹¹ are good resources for patients and parents or caregivers.

Patients should be rechecked on a weekly basis. Before evaluation by the FP, the symptom self-report section of the SCAT3 should be completed to help monitor progress. If improvement is not seen within 3 weeks of the injury, referral to a sport medicine specialist or a physiatrist should be made. Referral to other specialists will likely cost your patient too much time waiting. There are currently no evidence-based guidelines for the management of athletes with delayed recovery. Some of the rehabilitation principles your patients can expect to hear include implementing a sleep hygiene program, identifying symptom triggers, and prioritizing treatment to address the symptoms they find most functionally limiting. Subsymptom threshold exercise might be of benefit, and physiotherapy aimed at cervical spine or vestibular dysfunction, if present, can help to reduce symptoms.¹²

University students are more independent and might have less support. Seneca College has been nominated for an innovation award because of its program that initiates academic accommodations within 24 hours of SRC for their varsity athletes. Pressures and scholarly expectations are even greater at the university level, but management principles are similar, especially for varsity athletes. It is not unheard of for a student athlete to have to drop a course, or even miss a semester, in order to fully recuperate from an SRC. Pushing through unresolved symptoms is counterproductive and can actually prolong recovery and RTP.

Biggest difference

In the rapidly evolving field of research on SRC, FPs can identify patient-oriented evidence that matters. We must advise our patients about strategies to enhance cognitive and physical rest when appropriate and we must advocate for the SRC student returning to school in a graduated fashion. Family physician researchers should be encouraged to do more RTL studies to identify best practices, and outcome studies need to improve knowledge transfer efforts. We must insist upon decision tools that are useful in multiple clinical settings. We have the opportunity and the time to optimally manage the 10% to 20% of SRC patients who do not recover quickly. There needs to be a concerted effort to "shift the line to the right" so that far fewer SRC patients are symptomatic beyond 3 weeks. We will accomplish this through FP advocacy, pushing schools for multistage RTL protocols,¹¹ and early referrals when persistent symptoms indicate a failure to improve as expected. Postsecondary institutions and school boards need to recognize that a true liaison with FPs can save a student's semester and the accompanying stress. To advocate for better RTL for our patients, for our children, for our colleagues—even for Sidney Crosby—is within the grasp of Canadian FPs. We are the physicians who can make the biggest difference with an early RTL intervention plan. 

Dr Carson is Assistant Professor in the Department of Family and Community Medicine at the University of Toronto in Ontario. **Ms Rendely** is a medical student in the Department of Medicine at McMaster University in Hamilton, Ont. **Dr Lebrun** is Associate Professor in the Department of Family Medicine and a consultant sports medicine physician at the Glen Sather Sports Medicine Clinic at the University of Alberta in Edmonton. **Dr Warden** is Lecturer in the Division of Psychiatry at the University of Toronto. **Dr Arcand** is an emergency physician and Chief of the Emergency Department at Markham Stouffville Hospital in Markham, Ont.

Competing interests

None declared

Correspondence

Dr James D. Carson, Department of Family and Community Medicine, University of Toronto, 255 Main St, Unionville, ON L3R 2H3; e-mail james.carson@utoronto.ca

The opinions expressed in commentaries are those of the authors. Publication does not imply endorsement by the College of Family Physicians of Canada.

References

1. McCrory P, Meeuwisse WH, Aubry M, Cantu B, Dvořák J, Echemendia RJ, et al. Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012. *Br J Sports Med* 2013;47:250-8.
2. Davis G, Purcell L. The evaluation and management of acute concussion differs in young children. *Br J Sports Med* 2014;48:98-101.
3. Carson JD, Lawrence DW, Kraft SA, Garel A, Snow CL, Chatterjee A, et al. Premature return to play and return to learn after a sport-related concussion. Physician's chart review. *Can Fam Physician* 2014;60:e310-5.
4. Stoller J, Carson J, Garel A, Libfeld P, Snow C, Law M, et al. Do family physicians, emergency department physicians, and pediatricians give consistent sport-related concussion management advice? *Can Fam Physician* 2014;60:e548-52.
5. Lebrun CM, Mrazik M, Prasad AS, Tjarks BJ, Dorman JC, Bergeron MF, et al. Sport concussion knowledge base, clinical practices and needs for continuing medical education: a survey of family physicians and cross-border comparison. *Br J Sports Med* 2013;47:54-9.
6. American Academy of Neurology. Practice parameter: the management of concussion in sports (summary statement). Report of the Quality Standards Subcommittee. *Neurology* 1997;48(3):581-5.
7. Cantu RC. Cerebral concussion in sport. Management and prevention. *Sports Med* 1992;14:64-74.
8. Canadian Academy of Sport Medicine Concussion Committee. Guidelines for assessment and management of sport-related concussion. *Clin J Sport Med* 2000;10(3):209-11.
9. Craton N, Oliver L. Time to re-think the Zurich guidelines? A critique on the consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport, Held in Zurich, November 2012. *Clin J Sport Med* 2014;24(2):93-5.
10. Parachute Canada [website]. *Quick links*. Toronto, ON: Parachute Canada; 2014. Available from: www.parachutecanada.org/thinkfirstcanada. Accessed 2014 May 12.
11. Nationwide Children's Hospital [website]. *An educator's guide to concussions in the classroom*. 2nd ed. Columbus, OH: Nationwide Children's Hospital; 2014. Available from: www.nationwidechildrens.org/concussions-in-the-classroom. Accessed 2014 May 12.
12. Schneider KJ, Iverson GL, Emery CA, McCrory P, Herring SA, Meeuwisse WH. The effects of rest and treatment following sport-related concussion: a systematic review of the literature. *Br J Sports Med* 2013;47:304-7.

— * * * —