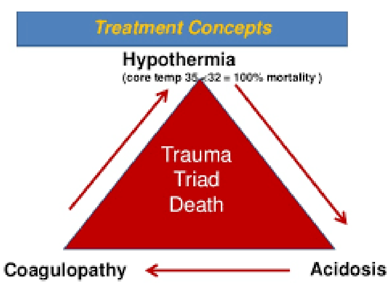
TRAUMA NEWSLETTER

THE OTTAWA HOSPITAL, TRAUMA SERVICE FALL/WINTER 2016

HYPOTERMIA IN TRAUMA

Mathieu LeBreton, RN, Trauma Services, TOH

Trauma patients die of being cold! The American Association of Critical Care Nurses (AACN) cites that the early identification and understanding of the death triad of hypothermia, acidosis and coagulopathy is essential in treating the trauma patient efficiently.[1]



A core body temperature of 32C or less are associated with a near 100% mortality rate, even in moderately injured patients. Winter is once again upon us and can further aggravate this complication. Hypothermia often begins at time of injury as a result of increased heat loss.[2] Extended extrication times, cold weather, and blood loss. During hospital resuscitation, blood and fluid resuscitation should be warmed up.

It is imperative to control what we can, by warming the patient using essential, but sometimes forgotten, nursing interventions. As important is to document the core temperature. Enumerated below are some easy things you can do to prevent hypothermia in every trauma patient:

- ✓ Early use of the Bair Hugger
- ✓ Priming the hot line at the start of your shift
- ✓ Always using the hotline (or Level 1), even during transport while infusing intravenous fluid
- ✓ Cover the patient post *exposure* with warm blankets
- ✓ Remove wet clothing early

Remember, this is a preventable and reversible cause. Aggressive warming must be performed prior to terminating any life sustaining therapy's, therefore it's best to start early even in ALL injured patients to avoid them going into the lethal trauma triad of death.

[1] Moore, K. Hypothermia in Trauma, J of Trauma Nursing 2008 Vol 15(2) pp. 62-64

INSIDE THIS ISSUE:

TOH TRAUMA UPDATE

Mathieu LeBreton, RN, Trauma Services, TOH

Our 2015-2016 Trauma Services Annual Report is ready for you to consult. We have hit a milestone of reaching more than 700 major trauma cases per year. This reflects the growing need for trauma care and injury prevention.

We are pleased to announce that The Ottawa Hospital as a Lead Trauma Hospital is now part of the *Trauma Quality Improvement Program*, developed by the American College of Surgeons. This will benchmark us with over 500 Level 1 trauma centres across North America using risk adjusted data.

LIFE AND DEATH IN YOUR HANDS:

STRANGULATION IS A COMMON EXPERIENCE FOR CLIENTS WHO HAVE BEEN ASSAULTED. Tara Leach, NP, Sexual Assault & Partner Abuse Care Program, TOH

Strangulation is a form of asphyxiation. It is defined by reduced blood flow to or from the brain via the external compression of the blood vessels in the neck. It takes only 6.8 sec to become unconscious from the time of occlusion of carotid arteries. How a person is strangled can vary: A person's hand or hands can complete strangulation; it can be completed by ligature (rope, scarf, cord), and by posture.

Strangulation is ranked as more dangerous than other forms of physical abuse and studies confirm that it is often a predictor for homicide.

Non-fatal strangulation has become more common in both sexual and domestic related assaults but its seriousness has been historically minimized by the legal, law enforcement and medical communities.

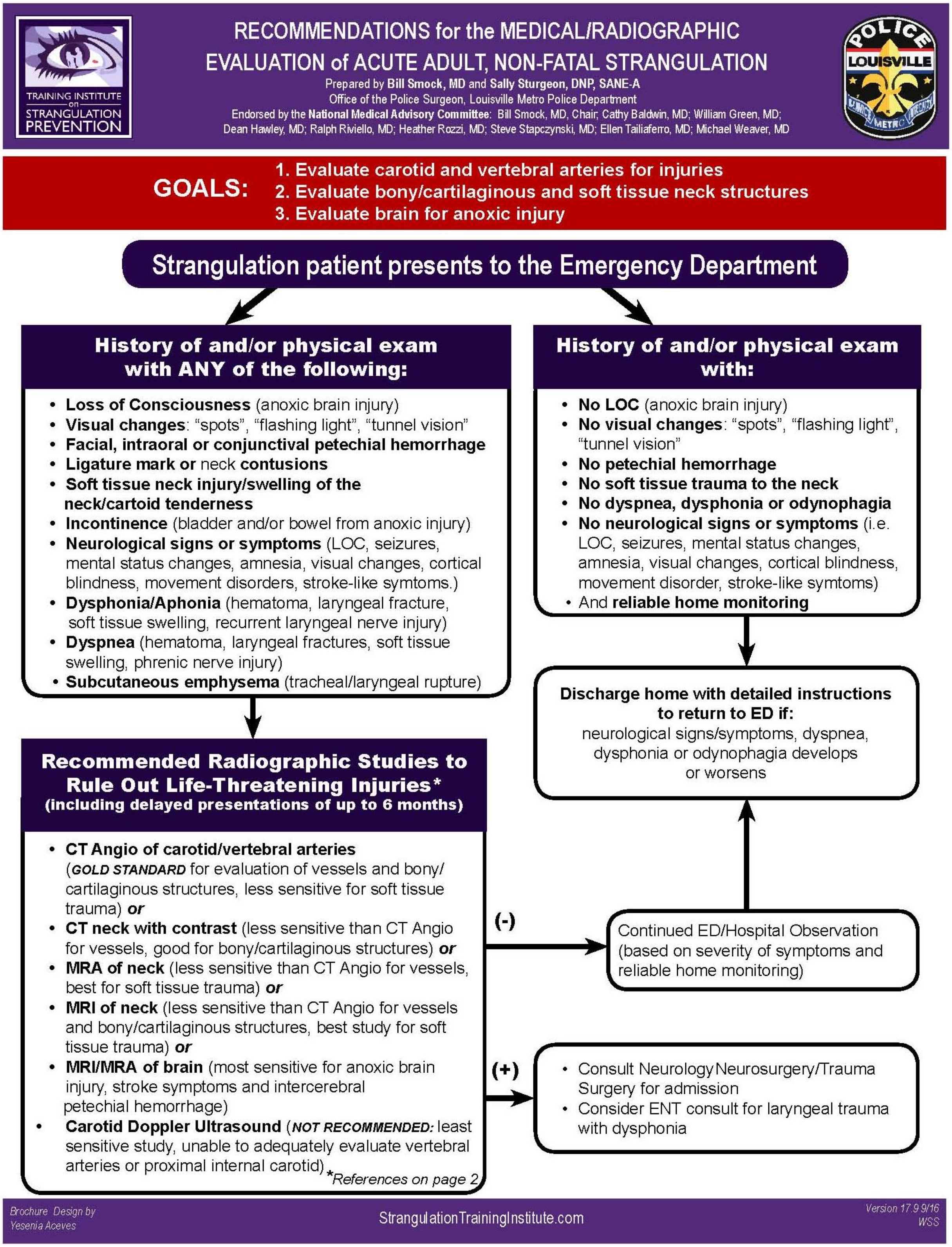
The Sexual Assault Partner Abuse Care Program (SAPACP) now sees approx. 1000 patients for care each year. The incidence of strangulation has been noted to average 25% of the patients who have accessed the SAPACP. Our patients could have experienced strangulation as an isolated event but most have had this terrifying reality repeated - sending the message loud and clear that their abuser has power and control over every breathe taken.

A 2008 study in the Journal of Emergency Medicine[1] suggested that the risks of an attempted homicide increase about sevenfold for women who have been strangled by their partner. The study also found that 43 percent of women murdered in domestic assaults, and 45 percent of victims of attempted murder, had been strangled by a partner in the previous year. “If someone was stabbed and survived, we’d say that was a very close call. If someone says she was strangled and survived we don’t say, you were lucky,” said Gael Strack, CEO of the National Family Justice Center in San Diego, Calif.

What most victims, and many professionals who deal with domestic violence or sexual assault every day, don’t know, is that it can cause brain damage, pneumonitis, miscarriage, heart attacks, and delayed death, days or even weeks after the assault. Surprisingly, in 50 percent of reported cases, this level of damage can be achieved without leaving noticeable bruises on the outside of the neck. Because external bruising is slight, victims often discount the physically and emotionally traumatic experience, believing “they are not really hurt,” and fail to document the abuse. Even fewer seek medical attention.

This is a serious crime and one that we need to take seriously and document accordingly. If you are part of a patients care and by history they have been strangled, please do not discharge them with a working diagnosis of neck pain, **please use the terminology of non-fatal strangulation** and ensure that the SAPACP is part of their care. If they have loss of consciousness, it deserves further diagnosis, see algorithm from the Training Institute on Strangulation Prevention on the next page.

We have specific documentation and follow up that can help!



[1] *The Journal of Emergency Medicine, 2008, 35.3*
Nancy Glass, Ph.D., M.Ph., R.N., Kathryn Laughon, Ph.D., R.N., Jacquelyn Campbell, Ph.D., R.N., Carolyn Rebecca Block, Ph.D., Ginger Hanson, M.S., Phyllis W. Sharps, Ph.D., R.N., and Ellen Taliaferro, M.D., FACEP

IT IS FALL PREVENTION MONTH!

Sonshire Figueira, IMG, Trauma Services, TOH

Everyone is being encouraged to take steps to reduce the risk of injury from a fall. That is why Trauma Services is participating in Ontario's Fall Prevention Month this November.

Falls are the leading cause of injury among older Canadians[1]. An estimated 1 in 3 older adults fall each year[2]. In 2010, falls were responsible for the most injury deaths in Ontario and generated $2.8 billion in costs to the provincial economy[3]. **85% of seniors' injury related hospitalizations and 95% of all hips fractures are caused by falls[1].** They typically result in chronic pain, reduced mobility, loss of independence and even death[1].

Did you know?

- We are all at risk. Teenagers, adults and the elderly. We all fall, what varies is how we fall.
- Younger people (<65 yo) are 5 times more likely to fall from a height than older people whereas as falls from the ground level are predominant among those over 65.
- In the past five years, more than 2,000 patients with injuries caused by falls have been seen at The Ottawa Hospital. This account **for 50 percent of patients admitted to hospital with major traumatic injuries.**
- Most falls happen during everyday activities like housework, home repair, walking, sports and recreation. Alcohol use is associated with a large number of falls.

The good news is:

FALLS ARE PREVENTABLE!

If we all stay active and minimize risk factors, we could live longer, injury-free and independent lives.

During Falls Prevention Month, Trauma Services wants to remind you of some of the resources that are currently available:

For our community:

- Better Strength, Better Balance!: City of Ottawa Exercise Program, no cost, for adults over 65y, beginners exercise class offered to improve health and balance, phone 613-580-6744)
- West End Integrated Falls Prevention Program(WEIFPP): for adults over 75y, who have had 1 or more indoor or multiple outdoor falls in the last year, who live in their own home or retirement home, who are not currently receiving therapy CCAC or a day hospital, phone 613-820-4922)
- Exercise Classes: no cost for seniors, provided by Family Physio, check website for locations: http://www.champlainhealthline.ca/libraryContent.aspx?id=20751#Ottawa
- Staying Independent Checklist - A self-Assessment tool for seniors: Are you at risk? If your scored 4 points or more, you may be at risk of falling, discuss the brochure with your doctor: http://www.champlainhealthline.ca/healthlibrary_docs/StayingIndependentChecklist_En.pdf

For our health care practitioners:

- Falls Prevention Algorithm-For Health Care Practitioners: Adults 65+ should be screened for falls annually by community program or Primary Care Practitioner (consider using above mentioned "Staying Independent Checklist") http://www.champlainhealthline.ca/healthlibrary_docs/FallsPrevention_Algorithm_Oct,15.pdf
- Falls Prevention Program: The Regional Geriatric Program of Eastern Ontario, in partnership with the Champlain Local Integration Network (LIHN) and a variety of community partners, developed a Champlain Falls Prevention Strategy which places a strong emphasis in improving the quality of life for Ontario seniors aged 65y and over. Please check www.stopfalls.ca for further details.

For more information: http://www.parachutecanada.org/falls or contact:

Sonshire Figueira, IMG
Injury Prevention Coordinator
Trauma Services
The Ottawa Hospital
Phone: 613 798 55555
Email: sfigueira@toh.on.ca

---

[1]Public Health Agency of Canada. (2015). *Seniors' Falls in Canada - Infographic.*

[2]Statistics Canada. (2014). *Understanding seniors' risk of falling and their perception of risk.* Statistics Canada Catalogue no.82-624-X. Ottawa, ON.

[3]Parachute. (2015). *The Cost of Injury in Canada*. Toronto, ON: Parachute.

[4]Regional Geriatric Program of Eastern Ontario. *Falls - Facts and Figures*. The Ottawa Hospital. Ottawa, Ontario.

ATV AND CHILDREN DON'T MIX

Kerri-lynn Whyte, RN, Trauma Program, CHEO

CHEO has seen many children this year that have had critical life threatening injuries due to All-Terrain Vehicle (ATV) use. As ATVs gain in popularity, the rate of injuries in children and youth has reached an all-time high. The number of ATV-related hospitalizations in children and youth has increased significantly in Canada since 1996, making ATV-related injuries the second most common cause of severe injuries in sport and recreation, after cycling.

Loss of control, collisions or rollovers can happen very quickly and can result in serious injuries. Typical ATV-related injuries include head trauma, spinal and abdominal trauma and fractures.

In the last decade, the Children's Hospital of Eastern Ontario (CHEO) has admitted more than 130 patients with ATV-related injuries, averaging about one per month. Among those injured, the average age was 13 years of age.

The Canadian Paediatric Society recommends that children under 16 years of age should not operate ATVs. Children under 16 do not have the physical size, strength, and coordination to safely operate an ATV. Children and youth are at a special risk for ATV-related injuries and death as they lack the necessary knowledge, physical development and motor skills to safely operate these vehicles.

In Canada, 25 per cent of all ATV-related deaths are among children 15 years of age and younger. Also, injury rates have gone up by 50 per cent, probably because many more Canadians are using these machines than in the past. The group that represents all Canadian children's doctors (the Canadian Paediatric Society), and some provincial doctors' associations as well, have spoken out about the dangers of children under 16 years of age driving any off-highway vehicle. They have seen the severe injuries and tragic deaths first hand.

How parents can prevent ATV injuries:

- Wait until the child is 16 years of age to operate the ATV
- Teach your child it is unsafe to ride as a passenger on an ATV designed for one rider.
- **A certified ATV or motorcycle helmet must be worn every time they ride.**
- Riders should also wear eye protection, long sleeved pants and a shirt, and gloves each time they ride.
- Always ride sober
- Take an ATV training program

Nova Scotia experiences 50 per cent reduction in ATV- related injury post-legislation.

The government of Nova Scotia amended its Off-highway Vehicles (OHV) Act to restrict youth under the age of 14 years from operating ATV's. The year after the law came into effect, IWK Health Center in Halifax saw a 50 percent reduction in ATV-related injuries for youth for youth under 14 years. Yet ATV-related injuries to youth 14-15 years did not change significantly. This suggests the law should be expanded to protect children up to age 16.

P.E.I. and New Brunswick have also amended their respective Off-road Vehicles (ORV) Act to restrict children under the age of 14 years from operating ATV's. The year after the law came into effect. IWK Health Centre in Halifax saw a 50 per cent reduction in ATV-related injuries for youth under the age of 14 years. Yet ATV-related injuries to youth 14-15 years did not change significantly. This suggests the law should be expanded to protect children up to age 16.

P.E.I. and New Brunswick have also amended their respective Off-road Vehicles (ORV) Act to restrict children under the age of 14 years from operating ATV's.

For more information on preventing ATV-related injuries, please see:

- Canadian Paediatric Society's Position Statement; Preventing injuries from all-terrain vehicles
- Too Young to Drive, Too Young to Ride-ATV safety campaign summary report-Kidsafe Connection, Stollery's Children's Hospital
- Ministry of transportation Off-Road Vehicles Act
- CHEO CHIRPP Data

Acknowledgements: Parachute Canada and CHEO for parts of this article.

BLUNT CEREBRO-VASCULAR INJURY

Jacinthe Lampron, MD , General Surgery, TOH

Trauma patients are risk of stroke. Blunt Cerebro-Vascular injuries (BCVIs) warrant early screening and preemptive treatment to improve outcomes. These injuries include dissection, transection or laceration of the carotid and vertebral arteries. **If left untreated, carotid artery injuries have a stroke rate of up to 50% and vertebral arteries injuries of up to 25%.** BVCIs are currently diagnosed in 1% of all blunt trauma admissions. Screening protocols have been described to identify these injuries in asymptomatic patients and to initiate treatment prior to neurologic sequelae.

BCVIs present as stroke following initial injury. The majority exhibit a latent period from hours to years, but most develop symptoms between 10-72 hours. As primary care providers, the goal is to discover BVCI during the "silent period".

Screening for asymptomatic BCVI was suggested in the 1990s after recognition that specific pattern of injuries were associated with BCVI. The 3 most recognize mechanisms are:

1. Direct blow to the neck;
2. Hyperextension with contralateral rotation of the head; and
3. Direct laceration of the artery by adjacent fractures.

On physical exam, the presence of the following should raise the index of suspicion of the presence of BCVI:

- Neck abrasion, contusion, crepitance, asymmetry, "seat belt" abrasion or gross deformity;
- Presence of carotid bruit or hematoma; and
- Loss of normal anatomic contours.

The previous Denver Screening criteria have been replaced by the Modified Memphis criteria, which are slightly more sensitive.

Modified Memphis Criteria:

- Base of skull fracture with involvement of the carotid canal or petrous temporal bone
- Cervical spine fracture
- Neurological exam findings not explained by neuroimaging
- Horner syndrome
- Le Fort II or III fracture pattern

Patients meeting one or more of these criteria should have a computerized tomography angiography (CTA).

Injuries are graded from 1 to 5, grade 1 represents irregularity of the vessel wall or a dissection/ intramural hematoma and grade 5 is a complete vessel transection.

Most BCVI occur in areas that are surgically challenging, therefore, **antithrombotic therapy is the mainstay of the BCVI therapy,** assuming no contraindications exist. The optimal regimen remains to be determined. Discussion with neurology is advised.

There cannot be enough emphasis on the importance of **screening high-risk patients as early recognition** and antithrombotic almost universally avoid ischemic neurologic sequelae.

Please refer to the diagram on the next page.

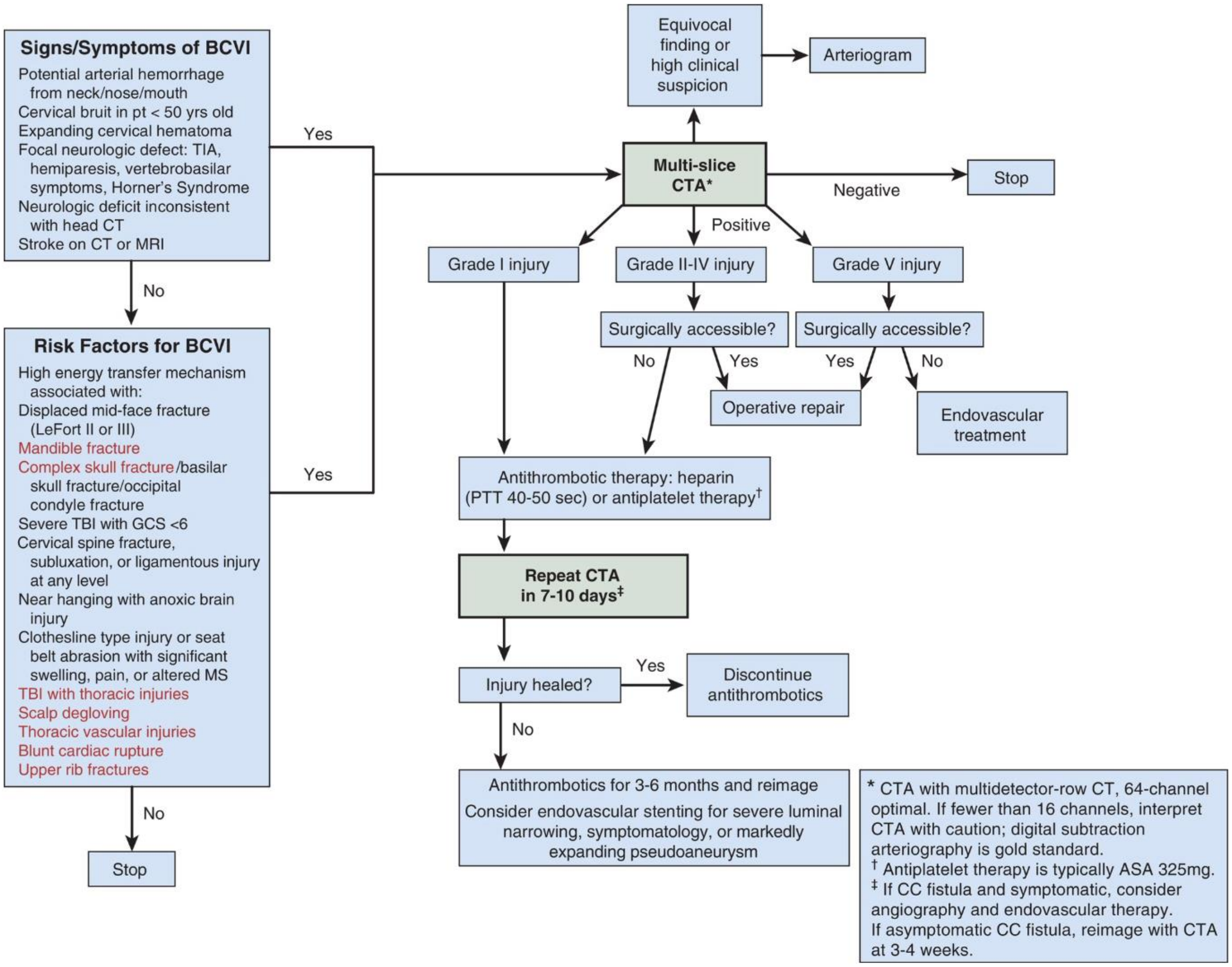
References:

Biffl W, Cothren C et al. Western Trauma Association critical decisions in trauma: screening for and treatment of blunt cerebrovascular injuries. J Trauma 2009; 67(6): 1150-1153

Bromberg WJ, Collier BC et al. Blunt cerebrovascular injury practice management guidelines: the Eastern Association for the Surgery of Trauma. J Trauma 2010; 68 (2): 471-477

Current Therapy of trauma and surgical and critical care, 2nd Edition, Ascensio, Trunkey, 2016, Elsevier, p. 185-192

BLUNT CEREBRO-VASCULAR INJURY - DIAGRAM



PEDESTRIAN SAFETY CAMPAIGN - BE ALERT, BE SEEN!

Sonshire Figueira, IMG, Trauma Services, TOH

On November 1st 2016, TOH-Trauma Services in partnership with MTO, City of Ottawa, Safer Roads Ottawa and the Ottawa Police Department, took part in the first Province-wide Pedestrian Safety Cross-walk event.

Dr. Jacinthe Lampron and Sonshire Figueira successfully delivered key injury prevention messages that aimed to encourage drivers and pedestrians to pay attention and focus on the road in order to prevent injuries.

The event took place at a major intersection in downtown Ottawa (George and Dalhousie). Partners had the opportunity to interact with numerous pedestrians, cyclists, drivers and media representatives (CTV and CFRA news).

EDUCATION OPPORTUNITIES

ATCN

Advanced Trauma Care for Nurses

Course dates: TBD 2017

Contact: e-mail trauma@toh.on.ca to be added to the ATCN distribution list or for general inquiries.

ATLS

Advanced Trauma Life Support

Provider course dates: 2017, February 9-11 and April 27-29

In order to be eligible to take the re-certification course your ATLS certification has to have been expired less than 6 months. If it has been expired more than 6 months you are require to take the full provider course.
Contact: Sonshire Figueira at sfigueira@toh.on.ca
This course is very popular. If you wish to take the course earlier you can search on the American College of Surgeons website for other Canadian sites that offer this course.

Ottawa Trauma Conference

A collaboration between TOH, CHEO and OPS

Conference date: May 4, 2017

Contact: Trauma@toh.ca to be added to the conference distribution list or for registration inquiries

PALS

Pediatric Advanced Life Support

Contact: Christina Toppozini at 613-737-7600 ext. 3322 or ctoppozini@cheo.on.ca

TNCC

Trauma Nursing Core Course

Course dates: TBD 2017

Contact: e-mail trauma@toh.on.ca to be added to the TNCC distribution list or for general inquiries.

Trauma Day

Nursing education day

Course dates: March 7, 2017

Contact: e-mail trauma@toh.on.ca to be added to the trauma day distribution list or for general inquiries.

EDUCATION OPPORTUNITIES … CON'T

TREKK

CHEO's Trauma Outreach Program

Contact: Kerri-Lynn Whyte RN 613-737-7600-2474 or kwhyte@cheo.on.ca
To book a team experience to enhance your pediatric resuscitation skills and knowledge. The CHEO Trauma Outreach team is available to the Champlain LHIN.

RTTDC

Rural Trauma Team Development Course

Contact: TOH Trauma Coordinator at 613-798-5555 ext. 19601 or trauma@toh.ca

The RTTDC has been specifically designed for non-trauma centre. This outreach 1-day course was developed by the American College of Physicians and Surgeons due to the recognition that trauma patients in rural settings have unique needs due to the isolated locations and circumstances by which many people sustain their injuries in rural settings. It is also recognized that resources, both personnel and physical, may be different in referring hospitals and the trauma resuscitation needs to be tailored to the unique needs of each referring hospital. The goal is to adopt a team approach to the initial assessment and resuscitation of the injured patient and to rapidly initiate transfer to definitive care when appropriate based.

We are planning courses in Winchester and Hawkesbury in the spring of 2017.

We also want to welcome our new RTTDC instructors:

- Leilani Doyle, MD
- Angie Jipson, RN
- Kelly-Anne Carroll, RN
- Ursula Guy, RN

Editing Committee

Jacinthe Lampron, MD, General Surgery, TOH
Alanna Keenan, RN, Trauma Services, TOH
Mathieu LeBreton, RN, Trauma Services, TOH
Debbie Charbonneau, Trauma Services, TOH

Contact us:

TOH Trauma Services	CHEO Trauma Program
613-798-5555 ext. 19600	613-737-7600 ext. 2475
Trauma@toh.ca	www.cheo.on.ca