Veterinary Trauma Centers

In this issue of the Journal, Abelson et al report the results of a prospective single-centered investigation on the incidence of coagulopathy following severe acute trauma in dogs. The mere fact that the study was a prospective investigation of trauma in dogs already puts the study in a select category and serves as a reminder that focused investigations related to veterinary trauma are needed. Much of the existing studies relating to veterinary trauma are retrospective in nature. Evidence based protocols for the approach to treating animals sustaining severe trauma are lacking and some commonly employed practices are directly extrapolated from the human literature on trauma despite the recognition that key differences exist in the types of trauma sustained, the availability of pre-hospital care, and in the medical and surgical approaches to certain types of injuries. The ability to conduct large scale studies of animals sustaining severe trauma could lead to evidence based treatment recommendations and the development of protocols that that would greatly impact the outcome of this population of patients. A multiinstitutional collaborative approach to gathering data on a large number of veterinary trauma patients would provide a foundation for veterinary trauma research. Such an undertaking requires organization, structure and funding in order to ensure that the information is adequately collected and managed. This undertaking was fortunately achieved in people with the formation of a Committee on Trauma, which allowed for coordinated trauma care within communities, ensuring patients received the right resources for the right care at the right time. There is extensive literature documenting the improvement in trauma patient outcome in people cared at established trauma centers.

Veterinary trauma patients account for 11–13% of admissions to small animal veterinary tertiary centers. Although the reported survival to discharge rate in dogs with traumatic injury is very good (85–91%), trauma is the second leading cause of death behind infectious disease for dogs under 1 year of age and neoplasia for dogs >1 year of age. A multidisciplinary, multi-institutional group (Spontaneous Trauma in Animals Team [STAT]) was created in 2009 with a vision to improve trauma patient outcome through comparative and translational medicine. The team’s ultimate goal is to establish naturally occurring trauma in dogs as a pre-clinical model to improve human and veterinary trauma patient care, much in the same way veterinary oncologists and neurologists have done. During the ACVECC Multidisciplinary/Post Graduate Review meeting in January 2010, representatives from the STAT team gathered to discuss the idea of creating a network of veterinary trauma centers (VTC) that would collaborate to provide exceptional patient care as well as develop a method to enhance multi-institutional clinical research and education. As a result of this discussion and early efforts by the group, the American College of Veterinary Emergency and Critical Care (ACVECC) established the Veterinary Committee on Trauma (VetCOT) as an ad hoc committee in 2011.

In people, trauma is the leading cause of death in people <34 years of age. In an effort to improve trauma patient care, the American College of Surgeons (ACS) established the Committee on Trauma (ACS-COT) in 1922. The first trauma centers were established in Chicago (Cook County Hospital) and San Francisco (General Hospital) in 1966. Ten years later (1976) the first “Resource” document was published regarding resource requirements for trauma centers. The goal of creating requirements for trauma centers is to ensure that all of the specialties required for definitive treatment of trauma patients are available with minimal delay, and to avoid the need to transfer patients with multi-system injuries to other facilities. It was hoped that “by virtue of the expertise contained within, training and research will be facilitated and there will be reciprocal improvements in trauma related services.” In 1987, the ACS-COT formalized their Consultation and Verification process. Trauma centers then seeded the development of trauma systems which allowed for coordinated trauma care within communities, ensuring patients received the right resources for the right care at the right time. There is extensive literature documenting the improvement in trauma patient outcome in people cared at established trauma centers.

The VetCOT is composed of 5 subcommittees populated by representatives from across the United States, Canada, and Australia. Drs. Kelly Hall and Claire Sharp spearheaded the effort to create the first document (“Guidelines”) outlining proposed resources required for Level I, II and III VTCs. The Guidelines and Verification subcommittee, led by Drs. Claire Sharp and Armelle deLaforcade, worked to modify the document and generate a consensus on requirements for VTCs (https://sites.google.com/a/umn.edu/vetcot/). This committee also generated an electronic survey distributed to all Diplomates of the ACVECC to ascertain interest in trauma center participation and identify, in a blinded fashion, the first wave of provisional VTCs based on likelihood that they would be able to verify...
resources in their hospital to meet Level I VTC requirements. In February 2013, the ACVECC Regents approved 9 veterinary hospitals and clinics in the U.S. to be provisionally identified as VTCs. The group is composed of 5 University-based hospitals and 4 private hospitals.

The criteria and expectations for VTCs include:

- On a 24/7 basis, the ability to provide total care for every aspect of management of the small animal trauma patient, from emergency stabilization through definitive medical and surgical care, and rehabilitation.
- The availability of board-certified specialists for consultation 7 days a week in the fields of emergency and critical care, surgery, and radiology.
- Ability to tailor patient care to individual needs through a team-based approach that allows emergency/critical care veterinarians to work closely with surgeons, anesthesiologists, internists, radiologists, cardiologists, neurologists, and other specialists.

These hospitals will work collaboratively to define high standards of care and disseminate information that improves trauma patient management efficiencies and outcomes. The VetCOT Guidelines and Verification subcommittee will be working with the centers throughout the first year to ensure all the requirements from the Guidelines are being met. At the end of the year, the Guidelines and Verification subcommittee will verify the hospitals as Level I, II or III VTCs.

Similar to human trauma centers, VTCs will also provide leadership in research and education. The VetCOT Trauma Registry subcommittee, spearheaded by Dr. Marie Holowaychuk, has created a pilot program utilizing an online database (REDCap) to enable participating centers to input select data points on all trauma cases presenting to the VTCs. The long-term goal for the database is to provide data derived from a large number of trauma patients across all VTCs that can be used to enhance our understanding of veterinary trauma. Moving forward, it will be a requirement for Level I trauma centers to input data into this registry. The VetCOT Education subcommittee, spearheaded by Dr. Tony Mann, is working to develop a Veterinary Advanced Trauma Life Support (VATLS) course that will consist of an online course based on current veterinary trauma literature, as well as a hands-on laboratory covering acute care procedures and techniques.

It is acknowledged that one major difference between human and veterinary trauma patient care delivery is the “pre-hospital” aspect. While creation of an ambulance/Emergency Medical Technician (EMT) system may not be feasible in all veterinary trauma systems, this concept may have the ability to work in some regions. Additionally, there are many certification programs that have been created for first responders (eg, EMTs, firemen, police officers) to provide immediate assistance to animals in crisis situations. The VetCOT Pre-hospital subcommittee, led by Dr. Rita Hanel, is investigating the feasibility of developing some aspects of pre hospital training that could benefit groups commonly identified as first responders as listed above.

The VetCOT anticipates expanding the VTC network of Level I hospitals on an annual basis, and to include Level II and III centers as outlined in the VetCOT guidelines. While much has been accomplished in a (relatively) short period of time (due to enormous efforts of many amazing and highly committed individuals), there is still much to be done. The VetCOT is working diligently to ensure processes are in place to make this large initiative successful, with the ultimate vision of creating a network of lead hospitals that seed development of robust trauma systems. These hospitals will work collaboratively to define high standards of care and disseminate information that improves trauma patient management efficiency and outcome. VetCOT has also set specific goals and these include:

1. Enhancement of trauma patient care (eg, improved survival, reduction of co-morbidities and development of protocols to improve efficiency and outcomes)
2. Enhancement and promotion of research collaborations (eg, development of evidence based medicine protocols; evaluation of minimally invasive, cost-effective interventions; translational medical opportunities)
3. Expansion and formalization of education on veterinary trauma
4. Enhancement of the visibility of veterinary specialty colleges

It is very much hoped that with the establishment of formalized VTCs we will soon have a host of evidence based treatment recommendations and the ability to develop protocols that could greatly improve the outcome in veterinary trauma patients.

References


10. [No authors]. Resources for the optimal care of the injured patient 2006; Committee on Trauma, American College of Surgeons, p. 1.


Kelly Hall, DVM, MS, DACVECC
VetCOT Communications Subcommittee Chair,
University of Minnesota, Veterinary Medical Center,
St Paul, Minnesota

Armelle deLaforcade, DVM, DACVECC
VetCOT Guidelines/Verification Subcommittee
Co-Chair
Executive Secretary, ACVECC

Cummings
School of Veterinary Medicine, Tufts University,
North Grafton MA

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