Original Study

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# Evaluation of an abdominal fluid scoring system determined using abdominal focused assessment with sonography for trauma in 101 dogs with motor vehicle trauma

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***Abstract***

**Objective –** Evaluate an abdominal fluid scoring (AFS) system using an abdominal focused assessment with sonography for trauma (AFAST) protocol.
**Design –** Prospective study.
**Setting –** Private veterinary emergency center.
**Animals –** One hundred and one client-owned dogs with motor vehicle trauma.
**Interventions –** AFAST performed on admission and 4 hours post-admission.
**Measurements and Main Results –** An AFS was assigned to each dog based on the number of AFAST fluid-positive quadrants identified using a 4-point scale: AFS 0 (negative for fluid in all quadrants) to AFS 4 (positive for fluid in all quadrants). Free abdominal fluid was identified in 27 of 101 dogs (27%). Dogs with AFS scores of 3 or 4 (14/27 [52%] AFS-positive dogs) experienced more marked decreases in packed cell volume and total plasma protein, increases in alanine aminotransferase, and needed more blood transfusions than dogs with lower AFS scores and AFS-negative dogs. Serial AFAST was performed in 71% of dogs (71/101); 17% (12/71) of these cases changed AFS score, and 75% (9/12) of the changes were higher (worsened) AFS, correlating with increasing amounts of free abdominal fluid. Ninety-eight percent of the study population was a primary presentation. Overall, median time from trauma to initial AFAST was 60 minutes, and median AFAST examination time was 3 minutes.
**Conclusions –** Initial and serial AFAST with applied AFS allowed rapid, semiquantitative measure of free abdominal fluid in traumatized patients, was clinically associated with severity of injury, and reliably guided clinical management. Where possible, AFAST and AFS should be applied to the management of blunt trauma cases.

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## *Introduction*

Undiagnosed intra-abdominal injury[1–3] and uncontrolled hemorrhage[4,5] are leading causes of death in human trauma patients, and ongoing hemorrhage is responsible for 80% of early death in hospitalized humans.[3,6–10] Historically, occult hemorrhage in human trauma patients has been problematic because aggressive fluid therapy in this subset of patients may exacerbate bleeding and increase patient morbidity and mortality.[11–15] Medical management of traumatized