

Shock Index in Canine Vehicular Trauma

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In the literature

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FROM THE PAGE ...

In dogs admitted to the intensive care unit, motor vehicle accidents are the most prevalent cause of blunt trauma.¹ Early and accurate identification of shock can reduce morbidity and mortality. However, recognizing shock can be challenging during the early, compensated stages. The shock index (SI), which is calculated by dividing heart rate (HR) by systolic blood pressure (SBP), was designed to evaluate tachycardia in the context of blood pressure (BP).² In human medicine, an SI >0.9 is associated with severe shock, higher mortality rates, increased transfusion requirements, and longer hospitalization.³⁻⁵

This study compared the SI in healthy dogs ($n = 60$) with the SI in dogs that experienced vehicular trauma within 24 hours of presentation ($n = 121$). Objectives were to determine if SI is higher in nonsurvivors as compared with survivors and to assess the correlation between SI and the animal trauma triage (ATT) score, plasma lactate level at presentation, and modified Glasgow coma score (MGCS) in dogs with vehicular trauma. Dogs were excluded from the study if they had a prior history of systemic diseases that could affect HR and BP, if they received veterinary treatment before presentation, or if they received IV fluids before BP measurement.

Results revealed a median SI of 1 in vehicular trauma dogs versus 0.75 in healthy dogs. The median SI was higher in nonsurvivors (1.27) as compared with survivors (0.96). SI was positively correlated with the ATT score, but there was a lack of correlation between SI and lactate and MGCS. The ATT score is a veterinary illness severity score, with higher scores indicating increased severity. A reliable cutoff for SI could not be established for predicting mortality due to significant overlap with survivors.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Shock is a significant contributor to death but is potentially reversible. Earlier identification can lead to a better outcome.
- 2** SI (HR/SBP) is a quick and easy triage tool that may be particularly helpful in compensated shock when SBP is maintained. An SI >0.9 to 1 may indicate shock, but this has not been validated. An SI >1 occurs when HR exceeds SBP.
- 3** Abnormal SI should prompt additional monitoring, diagnostics, and intervention.

References

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