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Accuracy of Trauma on Scene Triage Screen Tool (Shock Index, Reverse Shock Index Glasgow Coma Scale, and National Early Warning Score) to Predict the Severity of Emergency Department Triage

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Abstract : Introduction: Emergency medical service (EMS) care for trauma patients must be provided on-scene assessment and essential treatment and have appropriate transporting to the trauma center. The shock index (SI), reverse shock index Glasgow Coma Scale (rSIG), and National Early Warning Score (NEWS) triage tools are easy to use in a prehospital setting. There is no standardized on-scene triage protocol in prehospital care. The primary objective was to determine the accuracy of SI, rSIG, and NEWS to predict the severity of trauma patients in the emergency department (ED). Methods: This was a retrospective cross-sectional and diagnostic research conducted on trauma patients transported by EMS to the ED of Ramathibodi Hospital, a university-affiliated super tertiary care hospital in Bangkok, Thailand, from January 2015 to September 2022. We included the injured patients receiving prehospital care and transport to the ED of Ramathibodi Hospital by the EMS team from January 2015 to September 2022. We compared the on-scene parameter (SI, rSIG, and NEWS) and ED (Emergency Severity Index) with the area under ROC. Results: 218 patients were traumatic patients transported by EMS to the ED. 161 was ESI level 1-2, and 57 was level 3-5. NEWS was a more accurate triage tool to discriminate the severity of trauma patients than rSIG and SI. The area under the ROC was 0.743 (95%CI 0.70-0.79), 0.649 (95%CI 0.59-0.70), and 0.582 (95%CI 0.52-0.65), respectively (P-value <0.001). The cut point of NEWS to discriminate was 6 points. Conclusions: The NEWs was the most accurate triage tool in prehospital seeing in trauma patients.

Keywords : on-scene triage, trauma patient, ED triage, accuracy, NEWS
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