

Ganga hospital open injury score in management of open injuries

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Abstract

Introduction Open injuries of the limbs offer challenges in management as there are still many grey zones in decision making regarding salvage, timing and type of reconstruction. As a result, there is still an unacceptable rate of secondary amputations which lead to tremendous waste of resources and psychological devastation of the patient and his family. Gustilo Anderson's classification was a major milestone in grading the severity of injury but however suffers from the disadvantages of imprecise definition, a poor interobserver correlation, inability to address the issue of salvage and inclusion of a wide spectrum of injuries in Type IIIb category. Numerous scores such as Mangled Extremity Severity Score, the Predictive Salvage Index, the Limb Salvage Index, Hannover Fracture Scale-97 etc have been proposed but all have the disadvantage of retrospective evaluation, inadequate sample sizes and poor sensitivity and specificity to amputation, especially in IIIb injuries. **Methods** The Ganga Hospital Open Injury Score (GHOIS) was proposed in 2004 and is designed to specifically address the outcome in IIIb injuries of the tibia without vascular deficit. It evaluates the severity of injury to the three components of the limb—the skin, the bone and the musculotendinous structures separately on a grade from 0 to 5. Seven comorbid factors which influence the treatment and the outcome are included in the score with two marks

each. The application of the total score and the individual tissue scores in management of IIIb injuries is discussed.

Results The total score was shown to predict salvage when the value was 14 or less; amputation when the score was 17 and more. A grey zone of 15 and 16 is provided where the decision making had to be made on a case to case basis. The additional value of GHOIS was its ability to guide the timing and type of reconstruction. A skin score of more than 3 always required a flap and hence it indicated the need for an orthoplastic approach from the index procedure. Bone score of 4 and 5 will require complex reconstruction procedures like bone transport, extensive bone grafting or free fibular graft. Regarding the timing of reconstruction, injuries with a score of 9 or less indicated a low violence trauma and were amenable for early soft tissue reconstruction whereas injuries with a score of 10 or more indicated high violence injuries where a staged reconstruction policy must be followed. **Conclusions** Ganga Hospital Open Injury Score was found to be highly useful in decision making regarding salvage in IIIb injuries. The individual tissue scores were also useful to provide guidance regarding the timing and type of bone and soft tissue reconstruction.

Keywords Open injuries · Ganga Hospital Open Injury Score · Salvage · Amputation · Primary closure · Reconstruction

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Introduction

Open injuries of the limbs are still a major socioeconomic problem in developing countries due to the enormity of motor vehicle accidents and poor industrial safety. The treating surgeon often faces challenges at various stages of management of a severely injured limb. The decision to