Assessment Of Isolated Blunt Chest Trauma Patients In Benha University Hospital According To Thoracic Trauma Severity Score.

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Abstract

Background: Thoracic trauma is considered a significant cause of mortality and morbidity especially in the younger population. A scoring system that can help predict thorax related complications in thoracic trauma patients is needed. For this purpose, the Thoracic Trauma Severity Score (TTSS) was described. **The aim** of this study**:** was to assess the validity of the Thoracic Trauma Severity Score and its ability to predict outcome in blunt chest trauma patients. **Methodology:** Our study included 160 patients with isolated blunt chest trauma attending to emergency room at Benha University Hospital. **Results:** TTSS when larger than or equal 8 is a good test for prediction of outcome as sensitivity of it reach 92.3% while specificity is 100% with 97.5% accuracy. **Conclusion:** This study supports the use of the TTSS for predicting outcome in thoracic trauma patients, as higher scores were associated with poor outcome.

KEYWORDS: thorax trauma severity score; blunt thoracic trauma; trauma outcome.

Introduction

Thoracic trauma occurs in more than **50%** of blunt trauma patients.[1] It is considered a significant cause of mortality and morbidity especially in the younger population .[2]

Road traffic accidents **(RTAs)** are the commonest cause of blunt chest injuries accounting for up to **70%** in some other trauma is more common than penetrating chest injury, accounting for more than **90%** of thoracic injuries. [3]

Mechanism of injury after blunt trauma is mainly due to either: Acceleration /deceleration injury after motor car accidents or falling from a height, Compression /decompression injury as after falling of a heavy object on the chest that can lead to rupture diaphragm. Or marked increase in air way pressure against a closed glottis.[4]

Pain control, aggressive pulmonary toilet, and mechanical ventilation when necessary are the mainstays of supportive treatment. [5]

Outcome and prognosis for the great majority of patients with chest trauma are excellent. Most **(>80%)** require either non- invasive therapy or at most a thoracostomy tube. The most important determinant of outcome is the presence or abscence of significant associated injuries such as central nervous system, abdomen, and pelvis.[6]

Early and accurate evaluation of the severity level in thoracic trauma is important for correct treatment, from predicting intensive care need, to avoid future complications. [7]

Many scoring systems have been developed in recent years to define injury severity in cases of thoracic trauma and pulmonary contusion. Some of the scores are global but they do not provide detailed analysis of injuries [8]

On the contrary, some other scores focus only on one injury (e.g. Wagner score for pulmonary contusion) without considering associated injuries. Furthermore, these scores don't consider gas exchange or the patient's condition, which are major determinants in assessing respiratory risk. [9]

In contrast, the thoracic trauma severity (TTSS) score (table 1) is the only one to account for demographic data such as age or respiratory status (ratio between

partial pressure of oxygen in arterial blood and inspired fraction of oxygen (pao2/ fio2 ratio) in addition to most thoracic injuries (pleural effusions ,pulmonary contusions, rib fractures). [10]

The aim of this study was to evaluate isolated blunt chest trauma patients admitted to Benha University Hospital, according to Thoracic Trauma Severity Score and to assess ability of the score to predict outcome of such injuries.

Patient and Method

This study was a prospective study which was carried out in Benha University Hospital at Cardiothoracic Surgery Department from the beginning of July 2017 to the end of June 2018. Our study was approved by Institutional Research Board (IRB).The study was carried out on 160 patients with isolated blunt thoracic trauma attending to emergency department with inclusion criteria of (patients presenting with isolated blunt thoracic trauma, any age, both sexes). The Exclusion criteria included polytraumatized patients, penetrating chest trauma ,blunt trauma associated with penetrating trauma, any respiratory disease that affect pulmonary functions and end organ failure .

Initial management of patients was based upon protocols from Advanced Trauma Life Support (ATLS) follows the ABCDE pattern: Airway, Breathing, Circulation, Disability (Neurologic status), Exposure. Vital signs: pulse, blood pressure and respiratory rate assessed. Laboratory Investigation: complete blood count, arterial blood gases to assess the patient Pao2.

Imaging studies: chest x ray, computed topography to determine which of the lungs is affected, pleural involvement and fractured ribs , electrocardiogram and /or echocardiography to assess cardiac injury if any. Then we will put the patient data on the scoring system to fulfill all the parameters included in the score.