Section: General Surgery

Original Research Article

PERSPECTIVE STUDY OF BLUNT CHEST INJURIES IN REMOTE AREAS – RETROSPECTIVE STUDY

Venkatesh Gadekarla[1]

[1]Assistant Professor, Department of General Surgery, Navodaya Medical College, Raichur, Karnataka

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Corresponding Author:
Dr. Venkatesh Gadekarla,
Email: venky969@icloud.com

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Abstract

Background: Thoracic trauma is a significant cause of mortality next to cardiovascular disease and malignancy. Many patients die if not diagnosed and treated properly. **Materials and Methods:** 95 adult patients of both sexes had blunt chest injuries admitted to the emergency/casualty room; history, primary survey, and resuscitation were done simultaneously; chest x-ray/MRI erectile pasture was taken, and subsequent management, either operative or nonoperative, was decided according to clinical radiological findings. After discharge, patients were followed on an OPD basis till the patient became normal. **Result:** 54 (56.8%) vehicular accidents, 2 (2.10%) fall from height, 10 (10.2%) bull horn injury, 29 (30.5%) injury by blunt object (assault), 68 (71.5%) chest wall contusion only, 18 (18.9%) rib fracture, 7 (7.3%) sub-coetaneous emphysema, 1 (1.0%) pnemothorax, 1 (1.0%) suckling wound, 1 (1.0%) hemo-thorax, 1 (1.0%) rapture of diaphragm, 89 (93.6%) were conservative patients, 5 (5.2%) had ICD, and 1 (1.0%) had pleural tapping. Highest VAS 6 in 48, 32 needed blocks. **Conclusion:** The majority of chest trauma is treatable with simple procedures, and thoracotomy is rarely indicated. Mortality can be prevented if an early approach to a well-equipped hospital and a proper diagnosis are done.

INTRODUCTION

Thoracic trauma is a significant cause of mortality.[1] Many patients with these injuries die after reaching the hospital or on the way to the hospital. However, many of these deaths could be prevented with prompt diagnosis and treatment. Less than 10% of blunt chest injuries and only 15 to 30% of penetrating chest injuries require operative intervention.[2] In fact, most patients who sustain thoracic trauma can be treated by simple emergency room procedures, which are within the capabilities of clinicians. Chest injuries contribute to around 10% of total trauma-related deaths and 15% of loss of disability-adjusted life years.[3]

Trauma can be divided into two types: penetrating and blunt. Penetrating injuries are cutting; firearm injuries are disruptive to tissue integrity. Blunt injuring can cause damage to organs and structures under the tissue without disrupting the integrity of the tissue.[4] Hence, an attempt was made to evaluate the mode and severity of thoracic trauma, as it contains cardiovascular organs that may be fatal if not diagnosed and treated properly.

MATERIALS AND METHODS

95 patients aged between 20 to 65 years admitted to the surgery department of Navodaya Medical College Hospital, Raichur, Karnataka-584101 were studied.

Inclusion Criteria

Patients with polytrauma, patients of vehicular accidents with chest injuries, patients who fall from height, bully harm, chest injuries, assault on chest. The patients who gave consent in writing for study were selected.

Exclusion Criteria

Patients below 20 years and above 65 years associated with head injury with altered level of consciousness or abdominal injury required surgery; patients having pulmonary TB, COPD, or malignancy in the chest were excluded from the study.

Method: A detailed history of every patient was recorded on a chest x-ray (or MRI if needed). Routine blood examinations to rule out any pathology were carried out. The surgery was carried out with general anesthesia if necessary.

The duration of the study was April 2022 to March 2023.

Statistical Analysis

Mode of injuries, extent of underlying damages management protocol, VAS, and pain management were classified with percentage. The statistical

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analysis was carried out in SPSS software. The ratio of male and female was 2:1.

RESULTS

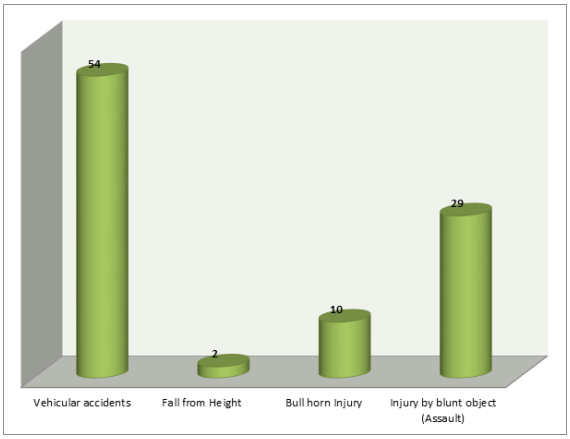

Figure 1: Study of patients as per Mode of injury

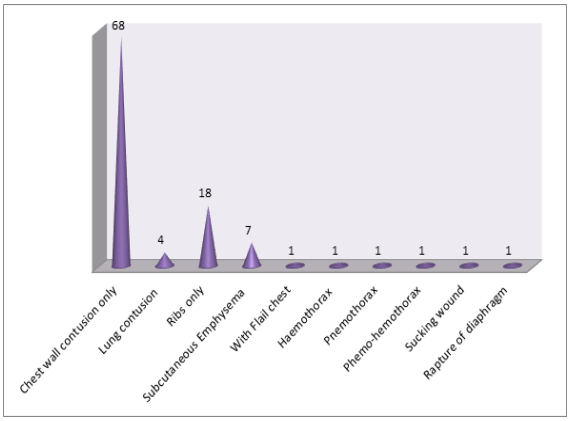

Figure 2: Extent of underlying damage

[Table 1] Study of patients as per made of injury 54 (56.8%) and vehicular accidents, 2 (2.10%) fall from height, 10 (10.2%) Bull horn injury, 29 (30.5%) injury by blunt object (assault).

[Table 2] Extent of underlying damage: 68 (71.5%) chest wall contusion only, 4 (4.2%) lung contusion (with or without ribs), 18 (18.9%) ribs only, 7 (7.5%) subcutaneous emphysema, 1 (1.0%) with flail chest, 1 (1%), haemothorax, 1 (1%) pnemothorax, 1 (1%) pnemo-hemothorax, 1 (1%) suckling wound, 1 (1%) rapture of diaphragm.

[Table 3] Study of management protocol followed among the patients: 89 (93.6%) conservative, 5 (5.2%) ICD, and 1 (1.05%) pleural tapping.

[Table 4] Study of VAS and pain management VAS score 2 had 1 case of IM, VAS score 4 had 44 cases with IM +/1 block, 2 patients needed bloc, VAS 6 had 48 cases IV ±/block, 32 patients needed block VAS 8 had 2 cases: IM + IV Block. 2 patients needed blocks.

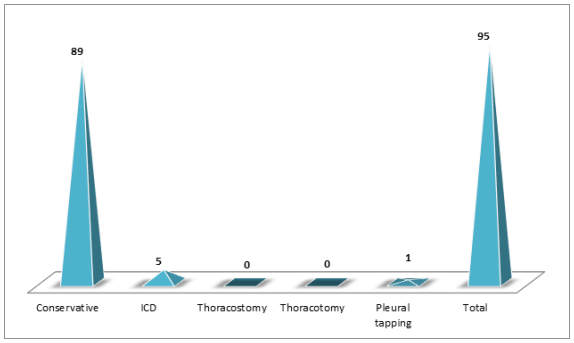

Figure 3: Management protocol followed among the patients.

Table 1: Study of patients as per Mode of injury. Total No. of patients: 95

Mode of Injury	No. of patients (95)	Percentage %
Vehicular accidents	54	56.8
Fall from Height	2	2.10
Bull horn Injury	10	10.2
Injury by blunt object (Assault)	29	30.5

Table 2: Extent of underlying damage

Extent of underlying damage	No. of patients (95)	Percentage %
Chest wall contusion only	68	71.5
Lung contusion (with or without ribs)	4	4.2
Ribs only	18	18.9
Subcutaneous Emphysema	7	7.5
With Flail chest	1	1.0
Haemothorax	1	1.0
Pnemothorax	1	1.0
Phemo-hemothorax	1	1.0
Sucking wound	1	1.0
Rapture of diaphragm	1	1.0

Table 3: Management protocol followed among the patients.

Management	No. of patients (95)	Percentage %
Conservative	89	93.6
ICD	5	5.2
Thoracostomy	0	0
Thoracotomy	0	0
Pleural tapping	1	1.05
Total	95	100

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Table 4: Study of VAS and pain Management.

VAS score	No. of cases	Pain management	No. of patients Needed block	Percentage %
0	0	--	0	0
2	1	IM	0	0
4	44	IM +/- Block	2	2.18
6	48	IM +/- Block	4.32	33.6
8	2	IM +/- Block	0	0
10	0	--	0	0

DISCUSSION

Present perspective study of blunt chest wall injuries in tertiary hospital of north Karnataka population. In the study of mode of injury, 54 (56.8%) had vehicular accidents, 2 (2.10%) had fallen from height, 10 (10.2%) had Bull horm injury, and 29 (30.5%) had injury by blunt object [Table 1]. In the study of underlying damage, 68 (71.5%) had chest wall contusion, 18 (18.9%) ribs were involved, 7 (73%) had subcutaneous emphysema, 4 (4.2%) had lung contusion, 1 (1.0%) had pnuemothorax, 1 (1.0%) had hemothorax, and 1 (1.0%) had rapture of the diaphragm [Table 2]. Management protocol followed among the patients: 89 (93.6%) conservative, 5 (5.2%) ICD, and 1 (1.0%) plural tapping [Table 3]. In the study of VAS and pain management VAS: 8 had 2 cases of pain management IM + IV block and 2 needed blocks. VAS: 6 had 48 cases of pain management IV +/- block and 32 needed block VAS score, 4 had 44 cases of pain management IM +/1 block, and 2 needed block [Table 4]. These findings are more or less in agreement with previous studies.[5-7]

Chest trauma is often associated with injury to the solid abdominal organs: pelvic fractures, extremity fractures, spinal fractures, and head injuries. These are more common among those subjected to falling from height than vehicular (traffic) accidents.[8] Most injuries are found in the age range of 20 to 40 years. The uncontrolled surgical events cause injuries ranging from simple rib fractures to sucking chest wounds. Pericardial temponade, hemopnemothorax, and other life-threatening injuries. The derangement in respiratory acidosis, shock, and consequent cardiac dysfunction will depend upon the offending weapon and amount of energy transferred. The worst outcome is usually associated with high-velocity assault and injury.[9]

The majority of patients did not require thoractomies as definitive treatment. The site of the intrapleural drain was 6th intracostal space midaxillary line. Thoracic surgeons generally agree that most patients with especially penetrating chest injuries could be managed adequately by a closed thoracostomy tube drained alone.[10]

Close or regular monitoring of the bluntly injured patient is paramount with repeated examination; radiographs, aortography, electrocardiograms, and computed tomography of the chest and blood as analysis as appropriate to detect changes. The importance of life support systems cannot be overemphasized.

Limitation of Study: Owing to the tertiary location of the research institution, a small number of patients lack the latest techniques, and we have limited findings and results.

CONCLUSION

The present perspective study of blunt chest injuries in tertiary care hospitals The majority of chest trauma is treatable with simple procedures, and thoracotomy is rarely indicated. Mortality can be prevented if an early approach to a well-equipped hospital and proper diagnosis are done because chest trauma is often associated with injury to solid abdominal organs, spinal fractures, and head injuries that prove fatal.

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