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ORIGINAL RESEARCH

Assessment of patients with rib fractures

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Abstract

Background: Fractured ribs are frequent findings after chest trauma. Multiple rib fractures occur in 10 % of poly-traumatized patients due to blunt etc. The present study was conducted to assess the patients with rib fractures.

Materials & Methods: 160 patients with rib fractures of both genders were carefully assessed. Parameters such as type of fractures and reason for fractures were recorded. All were subjected to chest radiography and thoracic computed tomography.

Results: Out of 160 patients, males were 90 and females were 70. 1-2 rib fractures were seen in 45 patients, more than 3 fractures were seen in 60 patients. Bilateral rib fracture was seen in 35 patients and flail chest was seen in 20 patients. Common reasons for rib fracture was RTA seen in 80, work place injury in 50 and domestic violence in 30 patients. The difference was significant ($P< 0.05$).

Conclusion: Common reasons are road traffic accidents, work place injury and domestic violence. Maximum cases were seen in males and >3 rib fractures were common.

Key words: road traffic accidents, rib, fracture

Introduction

Fractured ribs are frequent findings after chest trauma. Multiple rib fractures occur in 10 % of poly-traumatized patients due to blunt, high-energy trauma and can lead to unstable thoracic cage injuries or flail chest with respiratory insufficiency. Rib fracture management is challenge for orthopaedicians as it has relatively thin cortex and its tendency to fracture obliquely. Both conservative and surgical modalities have been tried in the management of rib fractures. Both techniques have few advantages and shortcomings too. A number of new fixation devices and better techniques have been developed for surgical treatment of rib fractures.[1]

Chest wall defects/deformities occur in a variety of traumatic circumstances and are characterized by severely displaced rib fractures that visibly deform the chest wall with or without soft tissue loss. Paradoxical motion may or may not be present and many of these patients, especially those who are young with adequate pulmonary reserve, do not require endotracheal intubation.[2]

Multiply fractured ribs or flail chest can significantly compromise respiratory function. Pneumonia is often the common pathway to acute respiratory failure resulting from rib fractures, and prevention offers the best means to avoid potentially preventable deaths.[3] The main goal of treatment is to prevent pneumonia and other complications of rib fractures (eg,

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nonunion). Conservative treatment includes pain control and aggressive supportive pulmonary care to avoid the need for intubation. For patients in whom these conservative measures are not adequate, rib fracture stabilization may be beneficial.[4]The present study was conducted to assess the patients with rib fractures.

Materials & methods

The present study included 160 patients with rib fractures of both genders. Patients were informed regarding the study and written consent was obtained.

General information such as name, age, gender etc was noted. All were carefully assessed. Parameters such as type of fractures and reason for fractures were recorded. Allwere subjected to chest radiography and thoracic computed tomography. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I Distribution of patients

Total - 160			
Gender	**Male**	**Female**	**P value**
Number	90	70	0.72

Table I shows that out of 160 patients, males were 90 and females were 70.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Fracture	1-2 ribs	45	0.72
	>3 ribs	60	
	Bilateral rib fracture	35	
	Flail chest	20	
Etiology	RTA	80	0.01
	Work place injury	50	
	Domestic violence	30	

Table II shows that 1-2 rib fractures were seen in 45 patients, more than 3 fractures were seen in 60 patients. Bilateral rib fracture was seen in 35 patients and flail chest was seen in 20 patients.

Common reasons for rib fracture was RTA seen in 80, work place injury in 50 and domestic violence in 30 patients. The difference was significant (P< 0.05).

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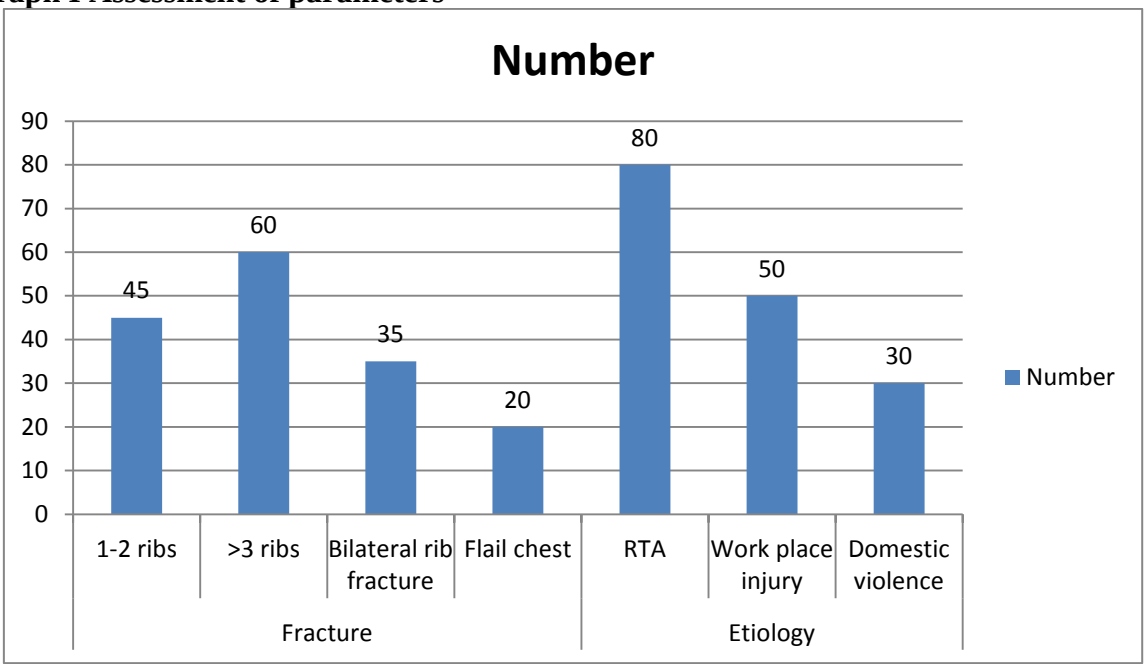
Graph I Assessment of parameters



Discussion

Rib fractures are one of the most common injuries in blunt chest trauma – more than 40 % of patients with thoracic trauma have fractured ribs. The real problem in patients with blunt chest trauma is the associated thoracic injuries, which determine the outcome of the trauma. It is established that associated thoracic injuries have direct correlation with the number of fractured ribs. At this point, even though rib fractures are not serious injury, they are considered as a marker of the severity of blunt chest trauma.[5]

Many studies have reported that as the number of rib fractures increases, the morbidity and mortality rates increase; however, morbidity and mortality rates may be equally high with isolated rib fractures. There is significantly increase in prevalence of accidents in the past few years. The number of fractures cases involving long bones and facial bones has increased at tremendraous rates.[6]The complications of external fixation/traction, theprolonged bedrest necessary for fracture union, and the occasional failure or inapplicability of this technique, however, led surgeons to consider internal fixation.[7]

Multiple fractured rib is a common clinical manifestations of chest trauma accounts for 10-15% trauma, including fractured ribs accounted for 85% of chest trauma. Rib fractures in patients with early most feel severe chest pain, dare not to breathe, cough, body posture change also is limited.[8] Even some serious multiple fractured ribs with because of flail chest and merge pulmonary contusion will appear acute respiratory function failure, which threaten life.[9]The present study was conducted to assess the patients with rib fractures.

We found that out of 160 patients, males were 90 and females were 70. Dehghan N et al[10] their study patients were allocated into three groups according to the number of fractures: 1) patients with an isolated rib fracture (RF1) (n = 50, 23.4%), 2) patients with two rib fractures (RF2) (n = 53, 24.8%), and 3) patients with more than two rib fractures (RF3) (n = 111, 51.9%). The patients were evaluated and compared according to the number of rib fractures, mean age, associated chest injuries (hemothorax, pneumothorax, and/or pulmonary contusion), and co-existing injuries to other systems. The mean age of the patients was 51.5 years. The distribution of associated chest injuries was 30% in group RF1, 24.6% in group RF2, and 75.6% in group RF3. Co-existing injuries to other systems were 24% in group RF1,

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23.2% in group RF2, and 52.6% in group RF3. Two patients (4%) in group RF1, 2 patients (3.8%) in group RF2, and 5 patients (4.5%) in group RF3 (total n = 9; 4.2%) died.
We found that 1-2 rib fractures were seen in 45 patients, more than 3 fractures were seen in 60 patients. Bilateral rib fracture was seen in 35 patients and flail chest was seen in 20 patients.
Common reasons for rib fracture was RTA seen in 80, work place injury in 50 and domestic violence in 30 patients. Fabricant et al[11]in their study one hundred forty-five male patients and 58 female patients with a mean injury severity score (ISS) of 20 (range, 1 to 59) had a mean of 5.4 rib fractures (range, 1 to 29). Forty-four (22%) patients had bilateral fractures, 15 (7%) had flail chest, and 92 (45%) had associated injury. One hundred eighty-seven patients were followed 2 months or more. One hundred ten (59%) patients had prolonged chest wall pain and 142 (76%) had prolonged disability. Among 111 patients with isolated rib fractures, 67 (64%) had prolonged chest wall pain and 69 (66%) had prolonged disability. MPQ PPI was predictive of prolonged pain and prolonged disability. The presence of significant associated injuries was predictive of prolonged disability.

Conclusion

Common reasons are road traffic accidents, work place injury and domestic violence. Maximum cases were seen in males and > 3 rib fractures were common.

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