Management of Thoracic Traumas: Analysis of 28 Patients

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ABSTRACT

Objectives: Trauma is the most common cause of death. Two parts 3 of all traumas are connected to the chest and the mortality is second after head injury. The purpose of this study is to determine the diagnosis, survival and treatment methods of chest traumas in a single-center. Methods: Between 01.08.2017 and 01.02.2018, all patients with thorax trauma admitted to the emergency service of our hospital and needed hospitalization were retrospectively reviewed with age, gender, additional systematic injuries, diagnosis, type of treatment, duration of hospitality. Results: 17 male and 11 female patients were evaluated with ages ranging from 8 to 84 years (mean 39.6). There were 26 blunt and 2 penetrating injuries. Etiological factors were fall in 5(17%), motor vehicle accidents in 19, assault in 2, stab wound in 1and gunshot in 1 case. 10 patients had pneumothorax, 5 hemothorax, 19 rib fracture, 22 pulmonary contusion, 2 sternum fractures determined. 25 patients followed up conservatively, chest tube insertion applied in 2 patients and 1 patient underwent operation because of lung laceration. There were no mortality. Conclusions: Thoracic traumas are life threatening injuries and should be treated immediately. Identification and severe of injury is the guide of the treatment modality.

Keywords: Chest traumas, blunt, penetrating, pneumothorax, hemothorax, pulmonary contusion, rib fracture.

1. INTRODUCTION

Mortality related to trauma is after cancer and cardiovascular disease. Thoracic traumas have a wide spectrum from simple rib fractures to major vascular injuries and are one part four of deaths in first fourth decades depended on traumas [1]. penetrating traumas are less common than blunt traumas and blunt traumas have higher mortality rate. Mortality rates increase if there is additional morbidities. The most common pathology is hypoxia and it is related with contusion, collapse and bleeding of the lung. Chest X-ray is the first radiological method to diagnose the trauma and determine the treatment approach. Additional CT scans can be helpful in suspicious pathologies.
2. METHODS

28 patients with thoracic trauma and treated in our clinic between 01.08.2017 and 01.02.2018 are included in this study. All patient datas were evaluated for gender, age, type and etiology of trauma, clinical findings, concomitant injuries, duration of hospital, retrospectively.

All the patients were firstly evaluated by physical examination, Chest X ray and blood test. If necessary Thorax computed tomography performed. Chest Tube was performed in patients with hemothorax and/or pneumothorax if it is not minimal and symptomless. Patients with minimal hemothorax or/and pneumothorax were followed up by chest X-rays. Due to the risk of bleeding, all the patients with pulmonary contusion were hospitalized and observed. Patient controlled analgesia and mucolytics performed to the patients with rib or/and sternum fracture due to the atelectasis risk.

3. RESULTS

Amount of patients were 28 and there were 17(60%) males and 11(40%) females with ages ranging from 8 to 84 years (mean 39.6). The major type of trauma was blunt with 26 (93%) patients and whereas there were also two(7%) penetrating traumas. The reason of trauma were fall in 5(17%), traffic accidents in 19 (64%), assault in 2 (7%), stab wound in 1(3.5%) and gunshot in 1 (3.5%) cases. 10(35%) pneumothorax, 5(17%) hemothorax, 19(64%) rib fracture, 22(75%) pulmonary contusion, 2(7%) sternum fractures had determined. 25(89%) patients followed up conservatively, chest tube insertion applied in 2 patients and 1 patient underwent operation because of lung laceration and bleeding. There were no mortality in follow up.

The most common reason of trauma was traffic accidents. There were 11 males and 8 females who had traffic accident trauma. The pathologies in traffic accident trauma were 8 pneumothorax (42%), 14 rib fractures (73.6%), 16 pulmonary contusion (84.2%) and 1 hemothorax (0.05%). As seen pulmonary contusion and rib fracture are common pathologies in motor vehicle accidents.

Thoracic traumas are not isolated from extra-thoracic traumas. There were 9(32%) additional pathologies in our study and most common were vertebra fractures with 8 patients. And other pathologies were forearm fracture, splenic laceration and calcaneus fracture in a fallen down patient.

4. DISCUSSION

Thoracic traumatic hospitalizations are a big part of thoracic surgery clinics. Yağıcıkaya et al. [2] mentioned that 29.7% of the thoracic surgery department patients that hospitalized because of trauma. Battistella et al. [3] indicated that 1 part 3 of patients that were hospitalized in thoracic surgery clinics had thoracic traumas. In our clinic 65% of patients were related to traumas. That is because of the low rate of the elective cases.

Thoracic traumas are most common in male patients. In a study [4] traumas were commonly between 25-44 ages and 70.9% of them were male and 29.8% were female. In our study the rate of males was 60% and females 40%.

Reason of thoracic traumas are variable. The reason is usually motor vehicle accidents. This rate indicated in case studies of Canır et al. 66.17%, Cakan et al. 42%, Demirhan et al. %42.4, Leblebi et al 80.2 % [4,5,6,7]. The rate of traffic accidents were 64% in our study.

The most common type of thoracic traumas are rib fractures. Basoğlu [10] et al. evaluated 80%, Tekinbaş [11] et al. 71.7%, Çakan et al. [5] indicated 56% rate of rib fractures. In our study the rate of rib fracture was 64%. Other common types are pneumothorax and hemothorax. In our study prevalence was 17% for pneumothorax and 19% for hemothorax. Cakan et al. [5] had a rate of 28% of pneumothorax and 21% for hemothorax. Tekinbas et al. [11] indicated this prevalences as 26% and 20% for pneumothorax and hemothorax.

In a study about thoracic traumas of Bouillon et al. [12] indicated that 66% of 612 patient were male and 34% were female. Also, Guneyli et al. [13] mentioned about 70.9% male and 29.8% female patient in a study with 1115 patient. In our study there were 7(60%) males and 11(40%) patients.

Duration of hospitalization is mean 4.7 days in our study. In a study of Çağırıcı et al. (14) this time is more than 8 days and also Çakan et al. [5] described as 9.6 days. The lower time values are associated about the few numbers of penetrating traumas.

The most common additional pathology was vertebra fracture (32%) in our study. Regel et al. [8] indicated as extremity fractures and Senturk et al. [9] abdominal pathologies.

In pleural complications related to thoracic traumas chest tube insertion is gold standard treatment method. Çağırıcı et al. [14] 80%, Yağımkaya et al. [2] 75.3% applied chest tube to the trauma patients in hemothorax and pneumothorax. In a study indicated
that chest tube is necessary in traumatic pneumothorax to avoid tension pneumothorax [15]. In our study we applied chest tube to 10% of all patients. One of them was for a hemothorax after gunshot. Chest tube and analgesic treatment was sufficient. A case was a stab wound with hemopneumothorax and after chest tube insertion, patient underwent operation because of the massive bleeding. And another patient had pneumothorax with blunt chest trauma. Although 35% rate of pneumothorax, conservative treatment was sufficient, and we did not applied chest tube if there is no symptom. There were no complications or morbidities.

Thoracic traumas are life threatening injuries and the duration until treatment is the significant factor of survival. To understand the pathology immediately and apply the propitiate treatment method has the key role in trauma management.

**REFERENCES**