



CAS CLINIQUE / CASE REPORT

CHEST TRAUMA IN COTE D'IVOIRE: AN ANALYSIS OF 437 CASES

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Introduction: Thoracic trauma is one of the leading causes of morbidity and mortality in developing countries. In this study, we present our experience on the management and clinical outcomes of chest trauma. Patients and Methods: We reviewed 437 chest traumas from January 2005 to January 2015 including 403 (92.21%) men and 34 (7.78%) women. Mean age was 35.38 years (range: 6-83 years). Clinical history, physical examination, standard chest X-ray and/or CT scan, treatment and results were itemized. **Results:** We collected 257 (58.81%) blunt injuries and 180 (41.18%) penetrating injuries. The leading cause of the trauma was traffic accidents (n=226; 51.71%) followed by violence (n=180; 41.18%). Trauma was mostly severe (n=351; 80.32%). Hemothorax (n=199; 45.53%), Pneumothorax (n=62; 14.18%), hemopneumothorax (n=128; 29.29%), rib fractures (n=174; 39.81%), subcutaneous emphysema (n=98; 22.42%), parenchymal lung contusions and wounds (n=61; 13.95%), and diaphragmatic rupture (n=4; 0.91%) were the most common types of injury. Extra-thoracic injuries were associated in some patients (n=22; 5.03%). A minority of the patients required thoracotomy in emergency (n=29; 6.63%); delayed thoracotomy was done in 15 patients (3.43%); pleural drainage (n=344; 78.71%) was efficient in most of our cases. Mean hospital length of stay was 7.14 days (range 4-18 days). The overall mortality and morbidity rate was respectively 1.83% and 8.23%. **Conclusion:** Chest trauma is often severe and caused by traffic accidents and violence. Pleural drainage was sufficient to manage majority of cases.

Keywords: Chest trauma, Rib fractures, Blunt injury, Penetrating injury.

Introduction

Trauma is the leading cause of death worldwide⁽¹⁾. Injuries to the thorax are the third most common injuries in trauma patients, next to injuries to the head and extremities⁽²⁾. Blunt chest trauma is most common with 90% incidence, of which less than 10% require surgical intervention of any kind ⁽¹⁾. In this study, we present our experience on the management and clinical outcomes of chest trauma.

Patients and methods: We review retrospectively, 437 chest traumas between January 2005 to January 2015. There were 403 men and 34 women. The mean age was: 35.38 years (range: 6-83 years). Epidemiology, physical examination, standard chest X-ray and/or CT scan, treatment and results were analyzed.

Results

We collected 257 (58.81%) blunt injuries and 180 (41.18%) penetrating injuries. The leading cause of the trauma was traffic accidents (n=226; 51.71%) followed by violence (n=180; 41.18%). This incidence is increasing significantly each year in our Country (Figure 1).

There was an upsurge in toracic trauma at the beginning, at the middle, and the end of the month (Figure 2). During the week, thoracic trauma increased in number at the week-end (Figure 3).

Trauma was mostly severe (n=351; 80.32%). Hemothorax (n=199; 45.53%), Pneumothorax (n=62; 14.18%), hemopneumothorax (n=128; 29.29%), rib fractures (n=174; 39.81%), subcutaneous emphysema (n=98; 22.42%), parenchymal lung contusions and wounds (n=61; 13.95%), and diaphragmatic rupture (n=4; 0.91%) were the most common types of injury. Extra-thoracic injuries were associated in some patients (n=22; 5.03%). Emergency thoracotomies were required in 29 patients (6.63%) for Massive hemothorax (n=6), persistent pneumothorax (n=19) diaphragmatic wound (n=4). Delayed thoracotomy was performed in 15 patients (3.43%) for hemothorax with pleural drainage failure (n=12), Pyothorax +/- pachypleuritis (n=3). Pleural drainage (n=344; 78.71%) was efficient in most of our cases.

Mean hospital length of stay was 7.14 days (range 4-18 days). The overall mortality and morbidity rate was respectively 1.83% and 8.23%.

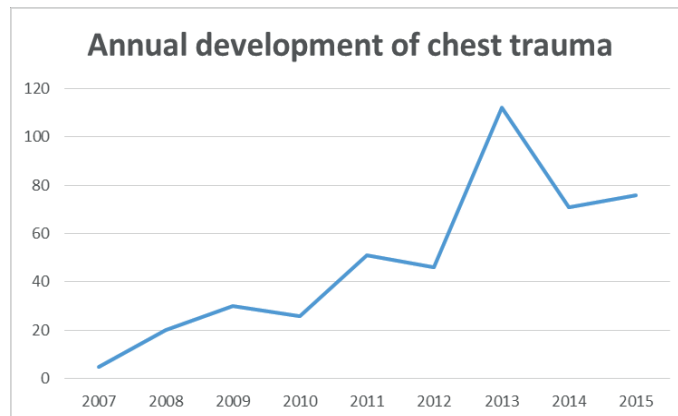


Figure 1 : Annual development of chest trauma incidence

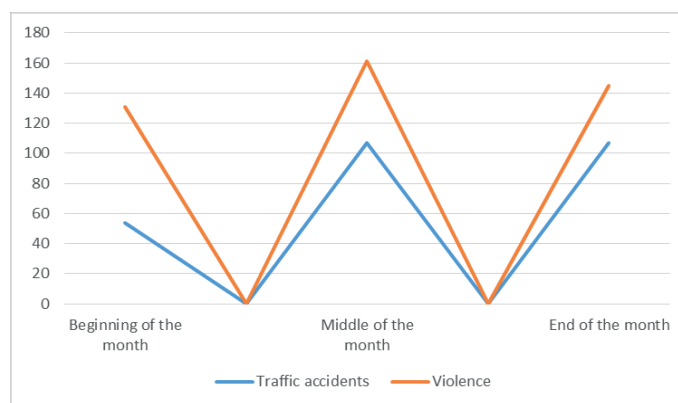


Figure 2 : Monthly development of chest trauma according to their etiology

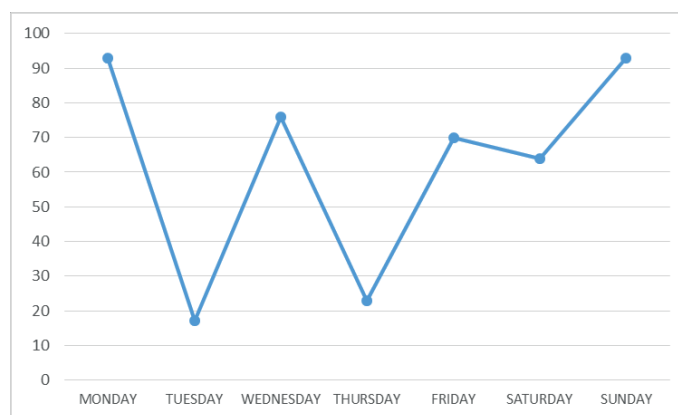


Figure 3 : Weekly development of chest trauma

Discussion

Epidemiology The incidence of chest trauma varies worldwide. This incidence is increasing significantly each year in our Country. In Syria, Al-Koudmani et al reported 80,72 cases by year⁽³⁾, in Turkey, Demirhan R published 420,5 cases by year⁽⁴⁾ and in Belgium, Segers P reported 420,5/years: ⁽⁵⁾. the same variability is observed in Africa : In Togo, Tomta K reported 35,55/year⁽⁶⁾, in Mali, S. Yéna published 17,2/year⁽⁷⁾, and Cameroon Mefire AC reported 27.23/year⁽⁸⁾. In this study carried out Cote d'Ivoire, we found 43,7/year. Adults are the most affected^(3,8,9) and Men are the most affected^(3,10) as we found in this Study. In our country, traffic accidents are the leading cause of chest trauma as reported in The literature^(5,10,8). In other region violence was the leading cause as published Al-Koudmani in 2012 in Syria. Regarding moment that occur the chest trauma, Little information is found in the literature. In our experience, there was an upsurge in toracic trauma at the beginning, at the middle, and the end of the month . During the week, thoracic trauma increased in number at the week-end . According to Broska J⁽¹¹⁾ in Brazil in 2017, he found a greater incidence of chest traumas in the night and early morning. The author reported that closed trauma occurs mainly due to traffic accidents, especially motorbikes.

Thoracic injuries .Blunt trauma was more frequent than penetrating trauma in this study with 58.81% of cases. This result is compatible with other results in literature reporting Blunt trauma ranging from 65.25 to 99,15%^(2, 8, 10). Pneumothorax, hemothorax and rib fractures are the most common types of thoracic injuries^(3, 4) according some authors while others reported that the most frequent intrathoracic complications of thoracic trauma were hemothorax, pneumothorax, and hemopneumothorax⁽¹²⁻¹⁴⁾. In our series the most frequent intrathoracic complications of thoracic trauma were Hemothorax (n=199; 45.53%), Pneumothorax (n=62; 14.18%), hemopneumothorax (n= 128; 29.29%), rib fractures (n=174; 39.81%).

Treatment

The severity of the trauma required a patient stay in intensive care unit in 82.37% of cases in our series which was high than other series^(8, 3). Pleural drainage by Tube. Tube thoracostomy was the main treatment modality (78,71%) of cases. This ratio was high than previously published results^(3, 8, 2). Indications of chest drainage include pleural effusion, pneumothorax, haemothorax, and post-thoracic surgery. Open thoracotomy was performed in 10.06% of patients as reported by other authors^(3, 8, 4). Outcomes Hospital length of stay was 7.14 days in our series which similar to literature^(3, 4). Hospital mortality was 1.83% while Kulshrestha P reported 9.41% in 2004 in USA in a level I trauma center⁽¹¹⁾

Conclusion

Incidence of chest trauma is increasing and the traffic accident, Blunt chest trauma and hemothorax were the main characteristics of chest trauma in our study. Outcome: favorable after pleural drainage which remains the most common therapeutic.

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