

The Polytraumatized in the Emergency Hosting Service and the Service of Resuscitation Gabriel Touré Mali

Diop Thierno Madane^{1*}, Magane Moustapha Issa¹, Almeimoune Abdoulhamidou¹, Dembélé AlajiSeidou², Dabo Aminata¹, Ouattara Kassoum¹, Dembélé Bakary Tientigui³, Traoré Alhassane³, Togo Adegné³, Diango Mahamane Djibo¹

¹Department Anesthesia-Intensive Care and Emergency, Gabriel Toure University Hospital, Bamako, Mali

²Anesthesia Department Ophthalmological Institute, West African University Hospital, Bamako, Mali

³General Surgery Department, Gabriel Toure University Hospital, Bamako, Mali

Email: *madane.diop@gmail.com

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Abstract

Summary: Polytrauma is the leading cause of death in the under-40 population. They are accompanied by major morbidity with severe sequelae. The polytraumatized is defined as a serious trauma with several bodily injuries, at least one of which is life-threatening in the very short term. The initial hospital care must not barely delay and directly affect the prognosis. In developing countries, the absence of pre-hospital medicine means that mortality is still very high, which leads us to initiate this work, which aims to study the epidemiological and clinical aspects of polytrauma in emergency and in resuscitation of Gabriel Toure University Hospital. **Material and Methods:** This was a retrospective study that took place over a period of ten (10) months from February to November 2016. We included all patients received for polytrauma emergency hosting service. The data were collected using a surveycard. **Results:** During our study period, we collected a total of 200 polytraumatized cases out of a total of 16,141 patients admitted to the emergency hosting service, a prevalence of 1.3%. The age group of 20 - 29 years was the most represented with average age of 32.39 years. The male sex was predominant with 65% with a sex ratio of 1.9. The students were the most represented with 24%. The trauma occurred at 22.5% between 8:00 and 12:00 am, the public road was the main place of the trauma with 57.5% of the cases. Two-wheeled vehicles were involved in the accident in 68.9% of cases. The delay between trauma and admission was minus 6 hours in 70.5% of cases, 15.5% had a Glasgow less than 8 and 44.5% PAS < 90 mmHg. The polytrauma associated with a cranial + limb and cranial + abdominal were the

most represented with respectively 37.5% and 25%. The damage control surgery was performed in 79% of patients. The mortality was 31% and hemorrhagic shock was the most common etiology of these deaths with 51.6%. **Conclusion:** The polytrauma is clinical situation putting the patients vital prognosis at stake. The haemorrhage is the origin of the student mortality. The installation of rigorous diagnostic system and a pre-hospital medicine will reduce the morbi-mortality.

Keywords

Polytraumatized, Emergency, Resuscitation, Bamako, Mali

1. Introduction

Injuries represent the 4th leading cause of all-age mortality and the leading cause of death in the under-40 population [1] [2]. The polytraumatized is defined as a severely traumatized person with several bodily injuries, at least one of which is life-threatening in the very short term [3]. Haemorrhagic shock alone is responsible for 40% mortality in these patients within 48 hours of trauma [4]. According to the World Health Organization (WHO), injury deaths are twice as high in low-income countries as in high-income countries [5]. The initial hospital care of such patients is immediate and the diagnostic and therapeutic approach must be extremely rigorous. It must be done according to a real strategy in order to determine the therapeutic urgency and to establish the complete lesional balance sheet. The adequacy and speed of the implementation of this strategy directly affect the prognosis of the polytraumatized. In sub-Saharan Africa, according to WHO, injuries are responsible for more deaths and disabilities than malaria and AIDS [5]. A study in Guinea found 39.54% polytrauma [6]; in Mali another had found 9.7% polytraumatized [7]. In Mali, with the multiplication of vehicles; non-compliance with traffic rules, the absence of pre-hospital medicine and a social security system (social third-party payment) means that mortality is still very high. As a result, the issue of medical management of polytrauma remains a public health problem. For a better knowledge of the subject, to improve the management of polytrauma patients, We initiated this work in order to study the epidemiological and clinical aspects of polytrauma in the emergency department and resuscitation of Gabriel Toure University Hospital.

2. Material and Methods

This was a retrospective study that took place over a ten (10) month period from February to November 2016. The study to be carried out on all patients admitted for trauma to the emergency hosting service. We included all patients admitted to the emergency department for polytrauma, that is, any patient with at least two traumatic injuries at least one of which was life-threatening. Patients

admitted for non-life-threatening trauma, patients with only one traumatic injury and trauma patients who died before care were not selected. The following parameters were analyzed: age, sex, etiology, time elapsed in the prehospital phase, diagnosis, treatment and evolution. The data was collected using a survey sheet, captured and analyzed using IBM's software, SPSS Statistics 22.0., Microsoft Office Pack 2016 software. The results are presented through simple tables, crosstabs and graphs.

3. Results

During our study period, we collected a total of 200 polytrauma cases out of a total of 16,141 patients admitted to emergency hosting service (EHS), a prevalence of 1.3%. The age group of 20 to 29 years was the most represented with an average of 32.39 years. The male sex was predominant with 65% with a sex ratio of 1.9. The students/students were the most represented with 24%. The trauma occurred at 22.5% between 8:00 and 12:00 am, the circumstances of the trauma (**Table 1**). The two-wheeled machines were involved in the accident in 68.9% of cases. The delay between trauma and admission was less than 6 hours in 70.5% of cases, 15.5% had a Glasgow less than 8 and 44.5% PAS < 90 mmHg. Lesions found in traumatized patients (**Table 2**). The nature of the treatment achieves (**Figure 1**). The evolution of the traumatized is detailed in (**Table 3**). Hemorrhagic shock was the most common etiology of these deaths with 51.6%.

Table 1. Etiology of trauma.

Cause of trauma	Frequency	Percentage %
Public road accident	115	57.5
Voluntary knocks and blows	35	17.5
Work accident	27	13.5
Domestic accident	14	7.0
Other	9	4.5
Total	200	100

The accidents of the public road was the most frequent cause of polytraumatism with 57.5%.

Table 2. Type of lesions.

Type of polytrauma	Frequency	Percentage %
Cranial + Member	75	37.5
Cranial + Abdominal	50	25.0
Thoracic + Abdominal	34	17.0
Member + Abdominal	26	13.0
Cranial + Thoracic	7	3.5
Member + Thoracic	6	3.0
Abdominal + Member + Thoracic	2	1.0
Total	200	100

The cranial/member and cranial/abdominal were the most frequent injury with respectively 37.5% and 25%.

Table 3. Evolution of traumatized.

Evolution	Frequency	Percentage %
Transfer	93	46.5
Death	62	31.0
Exit	36	18.0
Discharge	9	4.5
Total	200	100

We noted a mortality of 31%.

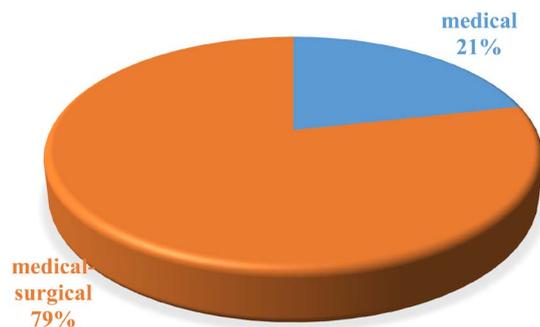


Figure 1. Type of treatment performed. The damage control surgery was performed in 79% of patients.

4. Discussion

During our study we encountered some technical difficulties because of the absence of pre-hospital medicine, so no real information transmission on pre-hospital phases of trauma. During the study period, we collected a total of 200 polytraumatized cases out of a total of 16,141 patients admitted to the emergency hosting service, a prevalence of 1.3%. Diango *et al.* [7] and Mangane *et al.* [8] found respectively 53.4% and 58.8% of traumatized. Our result could be explained by the fact that we included only the polytraumatized and also by the fact that many polytraumatized died at the place of the accident or during the transport. In our study the average age of our patients was 32.39 years with extremes ranging from 2 to 66 years and the most represented age group was that of 20 to 29 years with 44% of cases. Our results are similar to those of Diango *et al.* [7] and Mangane *et al.* [8] found respectively, 43% for 15 - 29 years, 27.50% for 12 - 19 years. These results can be explained by the fact that those under 40 are the most active segment of the population and the most affected by violent trauma.

We found a sex ratio of 1.9 in favor of the male sex (65%). This male predominance was found in the studies; Coulibaly *et al.* in Mali [9] 75%, Bahloul *et al.* in Tunisia [10] 90%, Wu *et al.* in China [11] 76.6%, Privat *et al.* [12] in France 83.3%. This may be explained by the fact that men drive more than women and occupy risky occupations such as those of vehicle drivers and have risky behaviors that women: driving at high speed, drunk driving on the road.

During our study accidents on public road with 57.5% was the main cause of the trauma, this finding is widely found in the literature. Mangane *et al.* [8], Kanikomo *et al.* [13] found respectively 74.40%, 59.7%, accident of the public road. This high rate of accidents of the public road as aetiologies of multiple trauma could be explained by the increase in road traffic and the fleet of two-wheeled vehicles and cars, the poor quality of gear and the lack of control of the high way code. Two-wheeled vehicles were involved in accidents of the public road with 68.9% of cases. This significant proportion of motor cyclists involved in accidents of the public road was also observed in the literature with 67.5% in Benin [14], 64.5% in Taiwan [15], and 72% in Thailand [16]. This result could be explained by the uncontrolled increase of these machines. The purchase and conduct of which is not subject to any control and the fact that no driving license is required from its users. In our study the time between trauma and admission was less than 6 hours in 70.5% of cases during our study period at the emergency hosting service. The mean duration was 5.4 ± 13.87 hours with extreme going from 1 hour to 22 hours. Olatoundji *et al.* [14] found an average delay of 2 days with extremes of 15 minutes and 13 days. This result could be explained by the absence of pre-hospital medicine in our country and by the fact that the collection and transport is provided by fire fighters who have limited means in terms of ambulance for the transport of patients to the hospital center.

Of the 200 patients, 198 patients presented with two (2) associated lesions (99%) and (2) patients (1%) with three (3) associated lesions. The polytraumatized patients have 37.5% lesions associated with head trauma plus limb trauma and 25% with head trauma associated with abdominal trauma and 17% thoracic + abdominal trauma. Diakit  *et al.* [6] found 48.5% of head trauma followed by 39.5% of Polytraumatized, and Diango *et al.* [7] Mangane *et al.* [8] found respectively 58.9% and 48.5% of trauma cranial. This predominance of cranial lesions could be explained by the fact that two-wheeled vehicles are the most involved in the accident on the one hand and the non-wearing of helmets that authorities could not impose on users. During our study period at the emergency hosting service, 79% of polytraumatized patients received surgical control damage and were corded a mortality of 31%. Patients among the patients died 51.1% presented a hemorrhagic shock and 22.6% a respiratory failure. Olatoundji *et al.* [14], Diango *et al.* [7] and Coulibaly *et al.* [9], avaient retrouv  had found respectively a mortality of 17.5%, 22.6% and 30%. This mortality rate could be explained by the absence of pre-hospital care, the seriousness of the clinical picture of some patients, the lack of qualified personnel to take charge of polytrauma patients, by the lack of material and medical means likely to improve the care and increase the chances of follow-up of polytraumatized.

5. Conclusion

Polytrauma clinical situation is responsible for multiple lesion associations

putting the patient's vital prognosis at stake. Haemorrhagic shock is the origin of the mortality raised. The establishment of a protocolized and rigorous diagnosis system of pre-hospital medicine will reduce the morbi-mortality.

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