

**EARLY OUTCOME OF POLYTRAUMA PATIENT ATTENDED AT MOI
AND MNH EMERGENCY DEPARTMENT.**

Kennedy Nchimbi, MD.

**MMed (Orthopaedics and Traumatology) Dissertation
Muhimbili University of Health and Allied Sciences
November 2013**

**EARLY OUTCOME OF POLYTRAUMA PATIENT ATTENDED AT MOI
AND MNH EMERGENCY DEPARTMENT.**

By

Kennedy Nchimbi, MD

**A dissertation submitted in (partial) fulfillment of the Requirements for the Degree
of Masters of Medicine in Orthopaedics and Traumatology of
Muhimbili University of Health and Allied Sciences**

**Muhimbili University of Health and Allied Sciences
November 2013**

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Sciences as dissertation entitled **Early Outcome of Polytrauma Patient Attended at MOI and MNH Emergency Department** in (Partial) fulfillment of requirements for the Degree of Master of Medicine (Orthopedic and Traumatology) of Muhimbili University of Health and Allied Sciences.

Dr Billy T. Haonga
(MD, M.Med OT/Trauma, Lecturer MUHAS).
Supervisor

Date

DECLARATION AND COPYRIGHT

I, **Kennedy Nchimbi**, declare that this **dissertation** is my original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature Date

This dissertation is a copyright material protected under the Berne Convention, the Copyright Act 1999 and other international and national enactments, in that behalf, an intellectual property. It may not be reproduce by any means, in full or part, except for short extracts in fair dealing; for research or private study, critical scholarly review or discourse with an acknowledgement, without written permission from the directorate of Postgraduate Studies, on behalf of both the author and Muhimbili University of Health and Allied Sciences.

AKNOWLEDGEMENT

I wish to express my sincere gratitude to my supervisor Dr Billy T. Haonga, for his advice and intellectual guidance at all stages of this dissertation. Also great thanks to Professor Lawrence Museru, Executive Director of MOI and Dr. Merina Njerekela, Executive Director of MNH for their permission to conduct this study in the institutes.

I also like to thank Dr C. K Makwaya of the Department of Epidemiology and Biostatistics MUHAS for his technical support. I am grateful also to Dr Mosha from the Department of Pathology for assistance in doing post-mortem.

I like to convey my thanks to all academic members of staff in the Department of Orthopedic and Trauma MUHAS and MOI for their input during development, follow up analysis of this dissertation.

I am grateful to my wife, Evarister S. Ndilila for her support, courage, commitment and taking good care of the family during my study period.

I humbly thank almighty God for a good health throughout my study period.

DEDICATIONS

This dissertation is dedicated to my beloved wife Evarister S. Ndilila and my son Christopher C. Nchimbi for their love, courage, and prayers to make sure our family is running smoothly, lastly the late Mr. and Mrs. T.G. Nchimbi my beloved daddy and mom who always inspired me since my childhood to study medicine.

ABSTRACT

Polytrauma is the occurrence of injuries to more than one body systems.

In Tanzania due to tremendous increase in motor traffic crashes hence number of cases which bring about challenges in management of polytrauma patients besides well established emergency departments in Muhimbili Orthopedic Institute and Muhimbili National Hospital.

Methodology: This was a cross sectional study. A convenient sampling method was used to recruit polytraumatic patients attended at emergency departments of MOI and MNH. Patients aged 12 years and above were assessed by using Revised Trauma Score (RTS), Systemic Inflammatory Response (SIRS) parameters following a signed consent during the study period. Data was collected using structured questionnaires and analyzed by computer software SPSS version15 program.

Results: Majority (89.3%) of study patients were males and half of the study participants were between age group of 21-46 years 51.8%. Formal employed participants were (33.9% Motor traffic injuries was the leading cause of polytrauma 85.7%, followed by fall from height (10.7%) and assault and others was 1.8%. Moreover the study revealed that among those with MTC; pedestrians were 37.5% and drivers and passengers had similar percent 27.1%. Most patients (57.1%) were admitted in MOI and MNH within 6 hours of injury, while (32.1%) and (10.7%) were admitted within 24 hours and after one day respectively. Majority of patients had complications within 24 hours of follow up. Sepsis was noted in (22.2%) and deaths 44.2% and DIC was the least. Within 7 days the same complications occurred with proportion of sepsis 17.8% and deaths 4.46 %. The study revealed statistic significant difference on hospital stay and proportion of occurrence of DIC ($p=0.005$) and death ($p=0.002$) within 24 hours of observation. Only sepsis was observed within 7 days of follow up to be statistic significant ($p=0.031$). Also the age group of 26-41 had the largest number of deaths 14 with the p value of 0.024 which is statistically significant.

Most of the patients (72%) had Traumatic Brain injury. Mostly observed cause of traumatic brain injury in postmortem 32.1% was severe head injury (diffuse axonal injury) by 16.1% followed by intracerebral hemorrhage which gave 8.9%. From a total number of 18 deaths which were observed in postmortem reports were all because of TBI. (16.1%) of TBI were scored from GCS of 3 and 5-4 were about 11 patients which corresponds to a total number of 9 who had severe brain injury. (Diffuse axonal injury).

Conclusion and recommendations: Polytrauma is still a challenging condition in present set up, and continue to take lives of young population. Moreover improvement in management of TBI, and further research should be done to establish national wide records of polytrauma.

TABLE OF CONTENTS

CERTIFICATION.....	ii
DECLARATION AND COPYRIGHT	iii
AKNOWLEDGEMENT:	iv
DEDICATIONS	v
ABSTRACT	vi
TABLE OF CONTENTS	viii
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF ABBREVIATION	xii
CHAPTER ONE.....	1
INTRODUCTION	1
1.2 LITERATURE – REVIEW.....	3
1.3 PROBLEM STATEMENT	6
1.5 RATIONALE OF THE STUDY	7
1.6 RESEARCH QUESTION	7
1.8 OBJECTIVES	9
1.8.1 Broad Objective.....	9
1.8.2 Specific Objectives	9
CHAPTER TWO	10
2.0 METHODOLOGY.....	10
2.1 Study Design.....	10

2.3 Study Subject	10
2.4 Study Area	10
2.5 Inclusion Criteria	10
2.6 Exclusion Criteria	11
2.7 Study Tools	11
2.8 Sampling Method	13
2.9 Statistical Data Analysis	14
2.10 Ethical Considerations	14
CHAPTER THREE	15
3.0 RESULTS	15
CHAPTER FOUR.....	22
4.0 DISCUSSION:	22
CHAPTER FIVE	25
5.0 CONCLUSION	25
5.1 RECOMMENDATIONS	25
REFERENCES	26
APPENDICES.....	30
Appendix I:Questionnaire	30
Appendix II:Dodoso la Kiswahili	37
Appendix II:Informed Consent to Participate in the Research.....	44
Appendix IV:Consent Form (English Version).....	46
Appendix V:Consent Form (Swahili Version)	47

LIST OF TABLES

Table 1:	The distribution of patients in Social demographic characteristics of polytrauma. (n=56).....	15
Table 2:	Distribution of sample by cause of injury against Motor traffic crashes (MTC).....	16
Table 3:	Below: Distribution of patients by cause of mortality from postmortem results (n=25).....	20

LIST OF FIGURES

Figure 1:	Distribution of patients by time interval between injuries to the admission to the hospital.....	17
Figure 2:	Distribution of sample by point time of occurrence of complications of polytrauma.....	18
Figure 3:	Distribution of patients by mortality rate due to polytrauma.....	19
Figure 4:	Distribution of patients by cause of mortality (n=18).....	21

LIST OF ABBREVIATION

AIS	-	Abbreviated Injury Score
ARDS	-	Acute Respiratory Distress Syndrome
ATLS	-	Advanced Trauma Life Support
EMD	-	Emergency Department
ICU	-	Intensive Care Unity
JAMA	-	Journal of the American Medical Association
MNH	-	Muhimbili National Hospital
MODS	-	Multiple Organ Dysfunction Syndromes
MOF	-	Multiple Organ Failure
MOI	-	Muhimbili Orthopedic Institute
MTC	-	Motor Traffic Crash
PTS	-	Pediatrics Trauma Score
RTS	-	Revised Trauma Score
SPSS	-	Statistical Package of Social Sciences
TBI	-	Traumatic Brain Injury
TRISS	-	Trauma Injury Severity Score
DIC	-	Disseminated intravascular coagulopathy

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Polytrauma is defined as two or more injuries to physical regions or organ systems, one of which may be life threatening, resulting in physical, cognitive, psychological impairments and functional disability. Two or more severe injuries in one body area via Injury Severity Score $ISS \geq 16$ [1, 2]

Tanzania being one of the developing country in Africa, has witnessed several disabilities and mortalities due to polytrauma which today accounts as major public health problem [2]

The complex cascade of the host defense response is stimulated by primary and secondary insults (two hit theory). The trauma impact determines primary organ, or soft tissue injuries and fractures (first hit; trauma load) with local tissue damage as well as an activation of the systemic inflammatory response [2]

Pathophysiology of Polytrauma is the immune responses whereby an overwhelming release of pro- or ant- inflammatory mediators, which cause organ dysfunction and increased susceptibility to infections and sepsis, endothelial cell damage, accumulation of leucocytes, disseminated intravascular coagulopathy and necrosis of parenchyma cells with the development of multiple organ dysfunction syndromes (MODS) or multiple organ failure (MOF) [2, 3]

Immediate and early trauma deaths are determined by severe major brain injuries, major vascular injuries and also major pulmonary injuries. Among early causes are hypoxia and severe hemorrhagic shock which correlate with high mortality rates, as well as with a high incidence of SIRS, and organ dysfunction [3]

Typical endogenous second hits are respiratory distress with hypoxia, repeated cardiovascular inability, metabolic acidosis, ischemia reperfusion injuries, dead tissues, contaminated catheters, or tubes, infections and surgery. In surgical interventions with severe tissue damage hypothermia or blood loss, in adequate, or delayed, surgical, or intensive care, after neglected or missed injuries, as well as massive transfusions, represent exogenous second hits (interventional load or surgical load) [3]

Late mortality is caused by secondary brain injuries and host defense failure. Direct, or indirect, mechanical forces induce organ and soft tissue injuries, or fractures [4]

1.2 LITERATURE – REVIEW

World Health Organization predicts that by the year 2020 trauma will be the leading cause of life loss for both developed and developing nations [5]

Trauma in Africa is an increasing significant problem. Trauma is a devastating problem in East Africa, which is “beginning to rival infections and parasitic diseases in the toll they take of young lives”. Polytraumatic injuries are not only leading cause of deaths but also the leading cause of functional limitations in adults younger than 45 years [6]

The study of short term outcome after major trauma has become an increasingly important focus of injury research, because of the increased motor vehicle and motorcycle crashes attributable to the evolution of life styles.

In the six month follow up done by Lecky et al, it was noted that severe lower extremity injury, including open leg fractures, was a dominating factor in predicting long term disability in that series of patients with multiple injuries [7]

Phillipo et al in Mwanza found motorcycle was responsible for the majority of road traffic crashes accounting for 58.8% of cases. In the study by Otieno et al in Kenya they found that majority of injuries were due to road traffic crashes, accounting for 52% of admissions [8, 9]

In the study done in India by Murlidhar on demography shows, the majorities affected were male patients 84% compared to females in the ratio of 5:1 with the average age 31 years and there was no significant difference in age between genders [10]

In the study done by Karwan et al observed that patients between 21-40 years of age represented half of all victims [11]

In a similar study done by V Murlidhar et al, they found no correlation between pre hospital delay and outcome (average delay being 6 hours) and very few victims were received at the hospital within the critical “golden hour” due to the infrastructures [9]

H. C. Pape et al observed only 18% of patients presented within the “golden hour” the first hour after injury in which the greatest difference in mortality can be made in trauma care. This is the underlying concept behind the ‘golden hour’ rule specifying that severely injured patients have to receive immediate surgical assistance, within 1 hour after a trauma, for better survival [12, 13]

In the study done by H. Tamim et al, showed that the average time from injury to hospital transports were about 5 hours. The ‘golden hour’ concept of major trauma was not achieved in these cases [2]

Ulvik et al observed an increase in mortality with age which was more promoted for older male patients. Also the effect of age on outcome is not the same for males and females and therefore a potential gender by age interaction was allowed for new outcome prediction [12]

Mortality even in young patients remains high (about 30 to 90%). Among the special problems are disturbances of the patient’s immune system, nosocomial infections with the development of sepsis and its impact on organ functions, hyper metabolism and metabolic failure hospital stay [14]

Musculoskeletal (extremities) and the head were the most common body regions injured accounting for 60.5% and 52% of cases respectively. Blunt injuries accounted for 90.7% (799) of the cases, of which 45.8% (404) suffered from falls. Among patients who experienced falls, 16 cases (3.9%) were from heights greater than 15 feet and (178) cases, 20.2% due to road crashes. Penetrating injuries accounted for 8.9% (78) of the cases [2]

A study done by Kam et al majority of patient 248 out of 1678 were admitted in the intensive care unit, a study was done on short term outcome of polytraumatic patient (ICU) of these, 159 necessitated ventilator support – the majority of patient 1348 were treated surgically that is surgical debridement(SD) [6]

In a study done in London by Boyd et al on outcome prediction in trauma, complications occurred among victims were wound sepsis 79.3% followed by complications of fractures the least occurred one was neurotically deficit 0.2%. In this study 1678 patients were alive of which 96.2% patients had disabilities and the remaining 52(3.8%) patients were discharged with permanent disabilities such as limb amputations in 40% (23.8%) [15]

In the study done by Dereeper et al the cause of death was cerebral lesions in 19 patients, hemorrhagic shock in eight and multiple organ failure in one patient who had an injury severity score (ISS) of 13. Most deaths (78%) occurred within 24 h of admission, 15 of these were due to extensive cerebral lesions and seven due to hemorrhagic shock [16]

Also study done by Faist et al found: a rapid single-phase (15 patients) due to trauma and shock; and a delayed two-phase MOF (19 patients) due to trauma, shock, and sepsis [17]

In the study done by De Saverio et al, concluded that Revised Trauma Score is important as a prognostic tool influencing morbidity and mortality in polytrauma patients [18]

1.3 PROBLEM STATEMENT

The occurrence of polytrauma conditions frequently reported in hospitals and they are on increase. However lack of polytrauma data is a major impediment in identifying deficiencies in our health and management including pre hospital care, resuscitation and definitive care in our hospitals. Consequently, outcome following polytrauma has of recent gained importance not only in the increase of cases but also the survivor rate is still a challenging issue in Tanzania. Studies of short term outcome after major trauma has become an increasingly important focus of injury research, because of the increased motor vehicle and motorcycle crashes attributable to the evolution of life styles.

1.5 RATIONALE OF THE STUDY

The process – outcome of polytraumatic patient pathophysiology and reduction of mortality has not been directly and comprehensively demonstrated using local data, in reviewing the impact of polytrauma. Due to the large numbers of polytrauma cases being seen, and lack of Literature on short term outcomes of Polytraumatic patients in Tanzania, It is envisaged that this study will give a way forward of good patient monitoring as per Revised Trauma Score system and parameters that are easy to monitor in many hospital settings.

1.6 RESEARCH QUESTION

- What are the sociodemographic outcomes of polytrauma?
- How does the severity of injury related to the outcome of polytrauma?
- How does the Revised Trauma Score increase objectivity in assessing early outcome of polytrauma?
- Does postmortem results corresponds well with the clinical diagnosis of patients?
- Does first encounter (attending physician) with polytrauma patients determine early outcome?
- Does the initial resuscitation effort of injured patients have significant impact on early outcome?

1.7 HYPOTHESIS

Is polytrauma a major cause of morbidity and mortality in our community? Glasgow coma score, systolic blood pressure and respiratory rate are the necessary parameters in early outcome prediction of polytrauma patients.

1.8 OBJECTIVES

1.8.1 Broad Objective

To determine the early outcome of polytraumatic patients attended at Muhimbili Orthopedic Institute (MOI) and Muhimbili National Hospitals (MNH).

1.8.2 Specific Objectives

- To describe the socio demographic characteristics of polytraumatic patients attended at MOI/MNH EMD.
- To determine causes of injuries in polytrauma.
- To determine the time interval between injury to the hospital reporting.
- To determine the point time of occurrence of the complications after polytrauma.
- To determine the mortality rate due to polytrauma.
- To determine causes of mortality in polytrauma patients.

CHAPTER TWO

2.0 METHODOLOGY

2.1 Study Design

A cross sectional hospital based study of early outcome of all polytraumatic patients treated at MOI and MNH EMD from April, 2012 to January, 2013.

2.3 Study Subject

The study included all study patients aged 12 years and above with gender irrespective of injury severity who were managed at MOI/ MNH during the study period and who consented for the study.

2.4 Study Area

Muhimbili Orthopedics Institute (MOI) and Muhimbili National Hospital (MNH) are tertiary hospital located in Dar es Salaam, Tanzania provided with very good emergency department equipments. The hospitals are situated in Dar es salaam City with a population of about 4.3 million (National sensa 2012). The hospitals have been established in the country to serve as referral hospital to provide tertiary care and receiving patients referred from regional hospitals. In additional the two hospitals serve as country referral hospital receiving patients from the three municipals Amana, Temeke and Mwananyamala and country at large. The hospitals are also a teaching hospital for Muhimbili University of Health and Allied Sciences (MUHAS) students both Undergraduates and Postgraduates students.

2.5 Inclusion Criteria

- Patient aged 12years and above.
- All polytrauma patient attended

2.6 Exclusion Criteria

- Patients who died within two weeks of follow up without postmortem results.
- Intubated patient upon arrival

2.7 Study Tools

In this study, data was collected by using structured questionnaires posted by nurses trained by the researcher. The nurses were trained on how to fill the forms and to observe and record information on Glasgow coma score, Blood pressure and respiratory rate immediately patient enters the emergency department so as Revised Trauma Score can be calculated. The data included patient details, initial physiological observations on arrival to hospital and a pre-hospital history about the mechanism of injury, the distance the accident occurred from hospital, the time delay from the accident until presentation to hospital and any care given prior to presentation to MOI and MNH emergency departments. Injury details recorded for the six anatomical regions of the body as outlined in the questionnaires. The main hospital interventions (both operative and non-operative) were also recorded as the mortality and major morbidity outcomes and the duration of hospital stay.

During the study period, type of injury sustained was documented by using Revised Trauma Score calculated and physical findings recorded. Two weeks follow up using the questionnaire and the subjects died within study period, postmortem was also carried out. Descriptive statistics for parametric and nonparametric data was analyzed.

All study subjects were followed up for two weeks and when a patient dies during the study period postmortem was done to co relate it with clinical diagnosis made before.

A number of scoring systems have been developed to facilitate consistent trauma triage severity evaluation, management and prognosis as per Injury Severity Score (ISS) JAMA 1990, 263=1942 – 2 anatomical injury severity score based on abbreviated injury scale (A15-90) value 1-75, Pitfalls – does not include physiological state, accounts only one injury per

body is viable for multiple injuries. TRISS – Trauma and injury severity score, Pediatric Trauma Score (PTS), Abbreviated Injury Score (AIS) [4, 19, 20]

But in this study we are going to use the Revised Trauma Score whose validity and reliability for use in both adults and children is easy and convenient.

$RTS_c = 0.7326 SBP_c + 0.2908 RR_c + 0.9363GCS_c$ but limitations intubated patients, alcohol and drugs, rapid changes of physiology

End outcome = anatomical injury + physiological injury + patient reserve [5, 19, 20]

REVISED TRAUMA SCORE

Scoring as per RTS

Glasgow Coma Scale		Systolic Pressure		Respiratory Rate	
GCS	Points	SBP	Points	RR	Points
15 – 13	4	> 89	4	> 29	4
12 – 9	3	76 – 89	3	10 – 29	3
8 – 6	2	50 – 75	2	6 – 9	2
5 – 4	1	1 – 49	1	1 – 5	1
3	0	0	0	0	0

Total score (the sum of scores above): 0–12 RTS score of 12 is labeled DELAYED (walking wounded), 11 is URGENT (intervention is required but the patient can wait a short time), and 10-3 is IMMEDIATE (immediate intervention is necessary). The last possible label is MORGUE, which is given to seriously injured people with an RTS score of 3 or lower.

<http://www.trauma.org/archieve/scores/rts.html>

2.8 Sampling Method

Convenient sampling method, all consecutive patients received at emergency departments of Muhimbili Orthopedic Institute and Muhimbili National Hospital during the study period was conveniently enrolled to participate in the study after signing the informed consent.

Minimum sample size calculation by

$$N = 4\delta^2/\epsilon^2$$

N = estimated sample

Δ = standard deviation which is mortality rate equals 17.5% [8]

E = estimated error which is 5%

$$N = 4 \times (17.5)^2 / (5)^2 = 49$$

Estimated sample size equals 49 patients.

2.9 Statistical Data Analysis.

All information received was scored and entered onto a data base developed using software package SPSS version 15.0. Data was summarized in form of proportions and frequency tables for categorical variables. Continuous variables were summarized using means and P-values were computed for categorical variables.

Revised Trauma Score (RTS) again was recorded to find observed and expected outcome.

Patients were assessed by using endpoints mortality and disease diagnosis such as MODS, sepsis, septic shock, etc.

The clinical parameters of Systemic Inflammatory Response Syndrome (SIRS) is a good prognosticator of path physiological state of polytrauma which includes heart rate, breathing rate, temperature and number of leucocytes were recorded throughout the study period

2.10 Ethical Considerations

The study was carried out after the approval by the MUHAS ethical review board. An informed written consent for patients, relatives and for those who were not able to consent three doctors consented as per ethical issues.

CHAPTER THREE

3.0 RESULTS

Majority of study patients were males 50(89.3%). and half of the study participants were between age group of 26-41 years 29(51.8%). Formal employed participants were 19(33.9%) as described in table 1 below

Table 1: The distribution of patients in Social demographic characteristics of polytrauma. (n=56)

Variable	Frequency	Percentage (%)
Age group		
10-25	12	21.4
26-41	29	51.8
42-57	11	19.6
58-73	2	3.6
74-89	2	3.6
Sex		
Male	50	89.3
Female	6	10.7
Occupation		
Peasant	4	7.1
Formal employment	19	33.9
Petty traders	9	16.1
Unemployed	4	7.1
Casual laborer	6	10.7
Others	14	25

Causes of Polytrauma Injuries

Motor traffic injuries are the most leading cause of polytrauma patient found in 48 (85.7%) patients, followed by falls from height 6(10.7%) and assault and others were 1 each respectively (1.8%). Moreover the study revealed that among those with MTC; pedestrians were 18(37.5%) and drivers and passengers had similar percent 13(27.1%). Table 2 below

Table 2: Distribution of sample by cause of injury against Motor traffic crashes (MTC)

Causes of injury	MTC Involvement				
	Passengers	Drivers	Pedestrians	Motorcyclist	Others
MTC	13(27.1%)	13(27.1%)	18(37.5%)	4(8.3%)	0(0.0%)
Fall from height	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(100.0%)
Assault	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	1(100.0%)
Others	0(0.0%)	0(0.0%)	0(0.0%)	3(50.0%)	3(50.0%)

Pearson Chi Square test P<0.000

Time from injury to admission after Injuries

Most patients 32(%57.1) were admitted in MOI and MNH within 6 hours of injury, within 24hours were 18(32.1%) and 6(10.7%) after one day of injury. *Figure 1 below*

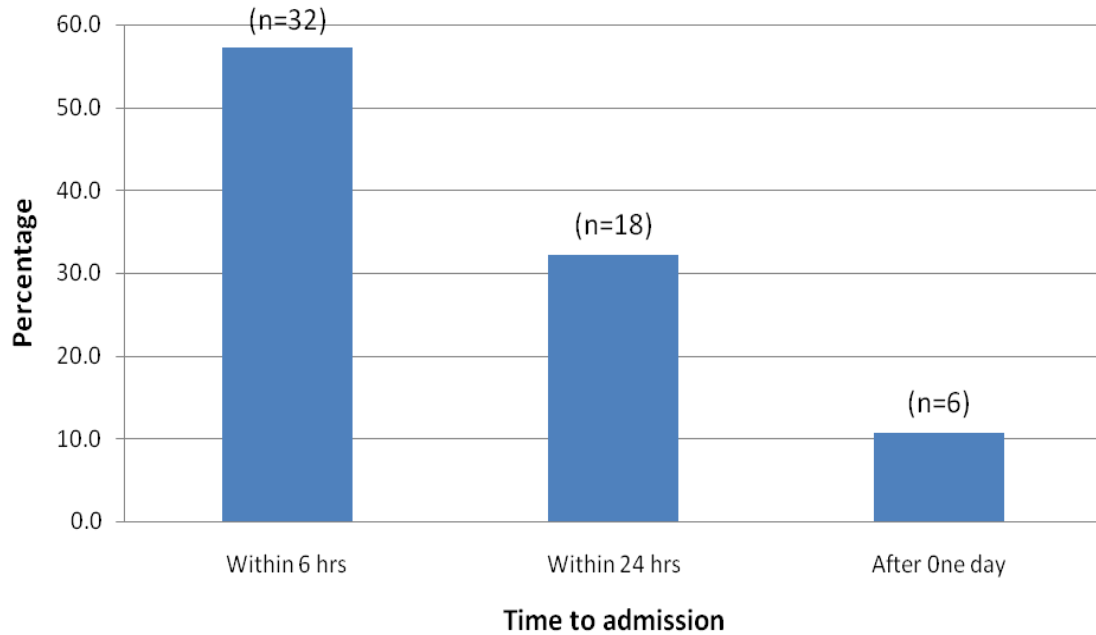


Figure 1: Distribution of patients by time interval between injuries to the admission to the hospital

Point of time Occurrence of complication

Occurrences of complications were assessed in 3 categories: within 24 hours, within 7 days and within 8-14 days.

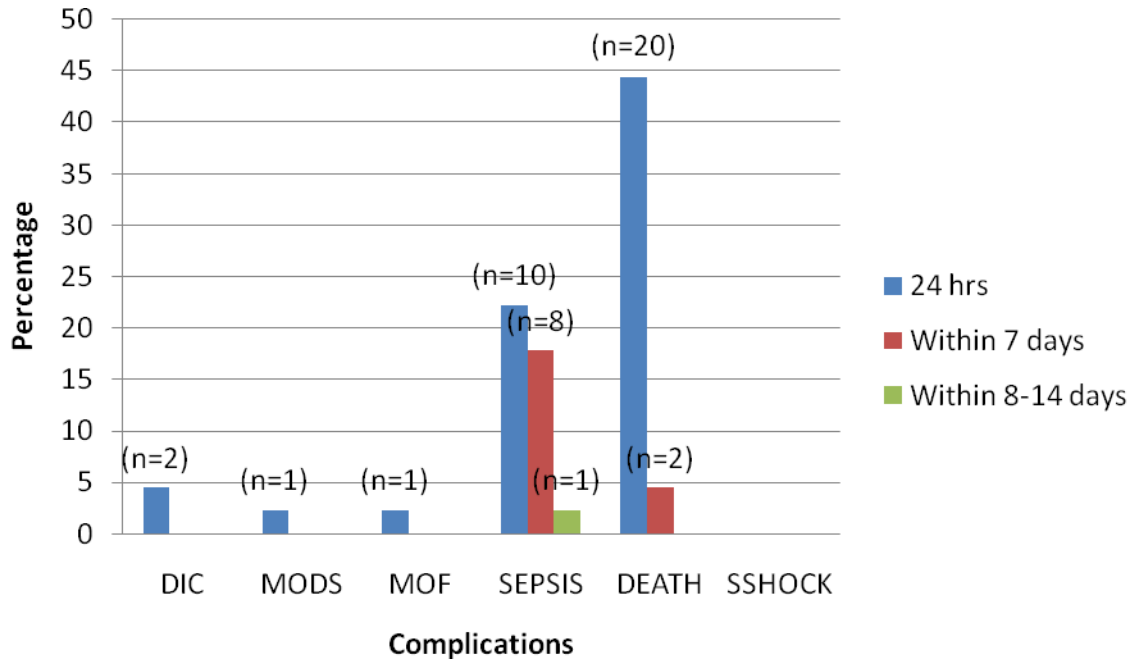


Figure 2 above: Distribution of sample by point time of occurrence of complications of polytrauma.

Majority of patients had complications within 24 hours of follow up, sepsis was noted in 22.2% and deaths about 44.2%, Within 7 days the same complication were noted with proportion of sepsis 17.8% and deaths 4.46% DIC was presented only 24 hrs of admission. In figure 2 above.

The study revealed significant difference on occurrence of complications. Proportion of occurrence of DIC ($p=0.005$), death ($p=0.002$) at 24 hours of observation. Only sepsis was observed within 7 days of follow up ($p=0.031$).

Mortality Rate of Polytrauma

Out of 56 study population 25 patients died. Study found 88% death occurred during first 24 hours according to the Revised Trauma Score these subjects fall under immediate group (immediate intervention is necessary) and 12% died in 7 days of admission.

Also the age group of 26-41 had the largest number of deaths 14 with the p value of 0.024 which is statistically significant.

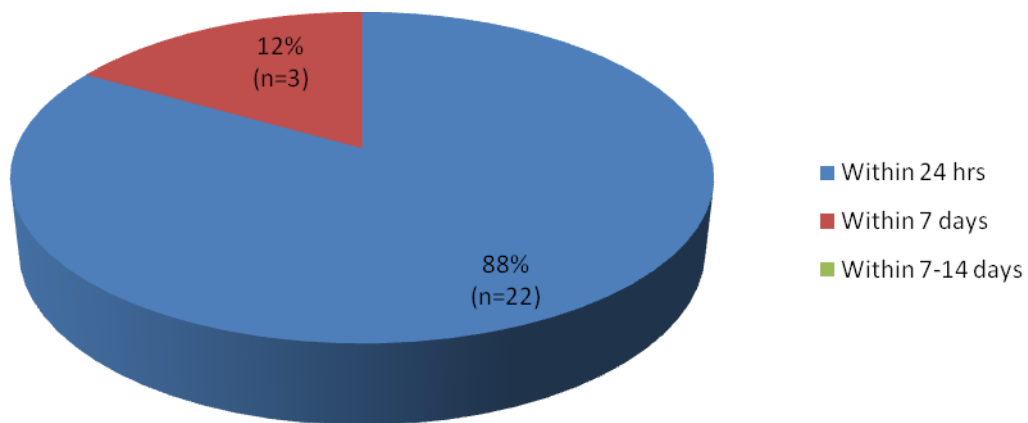


Figure 4 above: (n=25) Distribution of patients by mortality rate due to polytrauma.

Causes of Mortality in polytrauma Patients

Most of the patients had Traumatic Brain injury by 72% of those injured.

Table 3 Below: Distribution of patients by cause of mortality from postmortem results (n=25)

Causes of deaths	No: of patients (%)
Visceral injury	2(8.0%)
TBI	18(72.0%)
Septicemia	3(12.0%)
others	2(8.0%)
Total	25(100.0)

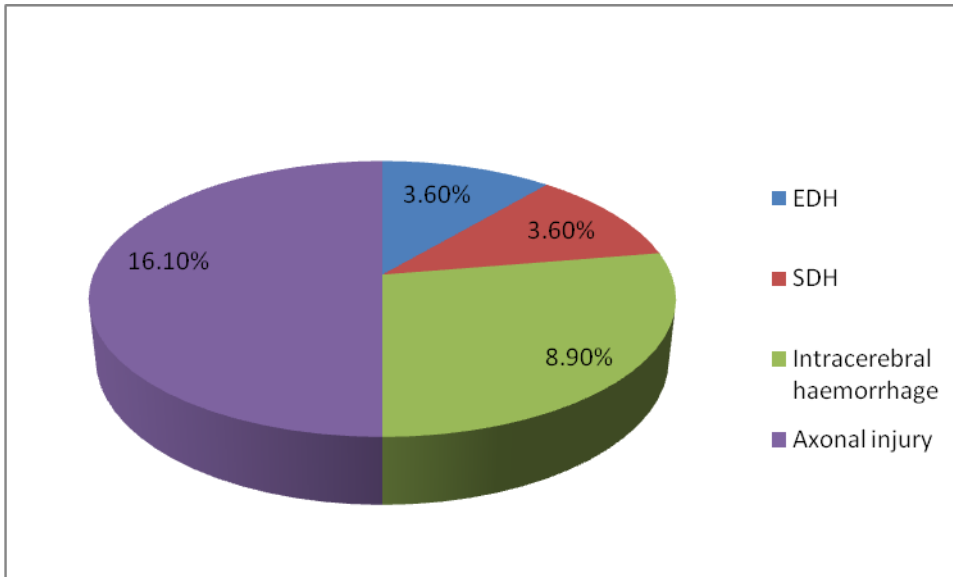


Figure 4: Distribution of patients by cause of mortality (n=18)

As revealed in figure 4 above; cause of traumatic brain injury in postmortem is (diffuse axonal injury) by 16.1% followed by Intracerebral hemorrhage which gave 8.9%. a total number of 18 deaths which were observed in postmortem reports were all because of TBI. 16.1% of TBI had scored from GCS of 3 and 5-4 were about 11 patients which corresponds a total number of 9 who had severe brain injury which was defined as diffuse axonal injury.

CHAPTER FOUR

4.0 DISCUSSION

The objective of this study was to evaluate the early outcome of polytrauma in the patients who were received at the MOI and MNH emergency departments. Structured questionnaire was used to collect information which was later analyzed by software package SPSS version 15.

In sociodemographic characteristics the study showed that the most (51.8%) affected age group was 26-41years. This finding corroborates with another study which shows the most affected age group was between 21-40 years of age [11]

Furthermore it was found that male were more affected than female with ratio of 8:1 which corresponds with a ratio of 5:1 in another study. Which explains the most active age group [8] Findings show that the mean age was 31 years which corresponds with another study which found that the mean age was 36 years [3, 9]

However these findings are contrary to the study done in Hong Kong which found that the mean age was 72.1years. This can be explained by the fact that enrolled participants aged older than 65 years [6] [15]

Study found that formal employees constitute 33.9% and the least (7.1%) were unemployed. This shows that many injuries occurs on their ways to their daily activities in poor infrastructures [8]

The majority (85.7%) of polytrauma patients was the victims of motor traffic crash. This findings corroborates with another study which found that motor vehicle related injuries were the leading cause of polytrauma injuries by 34.7% and also a study in Kenya found majority (52%) of injuries were due to road traffic crashes [10,21] This findings are contrary with study done in India whereby higher mortality rate (30%) was due to railway related injuries, Patients with sepsis treated in a surgical ICU have higher short-term and long-term mortality than do trauma patients [9,27]

India majority of 90.4% of the injuries were blunt, and also head trauma presented in the majority 76% of the patients in their study [8]

In this study it was found that 57.1% of participants arrived to the hospital within six hours after sustain injuries followed with 32.1% for those came within 24 hours. These findings are similarly to another study which found that 6 out of 16 had the average arrival time to hospital care within 5 hours [4]

Majority of the complications occurred within 24 hours and within 7 days of follow up which were deaths 44.4%, DIC 4.44% and sepsis 17.8% in (24 hrs) and within 7 days of follow up. The only complication occurred within 8-14 days throughout the study period was sepsis 2.22%. These findings are supported by another study which found that 40 died within 24 hours which was primarily resulted from severe Traumatic Brain Injury mainly caused by gunshot wound to the head or motor vehicle crashes [18]. However this findings are contrary to another study which found delayed pattern of MOF caused by concomitant sepsis [24]

In this study it was found that 44.4% of deaths occurred during first 24 hours. According to Revised Trauma Score these subjects fall under immediate intervention necessary. This findings are supported by another study which found that deaths caused by severe head trauma was 43% peaked at 6 to 24 hours, and deaths peaked at 1 to 6 hours after admission [25]. This findings contrast with findings from another study which found most deaths (78%) occurred within 24 h of admission [16]

Also the age group of 26-41 had statistically significant number of deaths 51.8%. The revised trauma score is a reliable indicator of prognosis and reliable predictor of prognosis of polytraumatic patients [26]. Study also revealed most of the patients (72%) had Traumatic Brain injury, which is Similar to another study whereby deaths were half of them because of their brain-trauma [24]

In this study it was found mortality rate was statistically significant high in young age. Similar findings was found in another study done in Bugando which revealed the mortality rates in young age patients with mild, moderate and severe injuries were 6.8%, 23.9% and 69.3% deaths respectively, these differences were statistically significant [8]

This study found that the leading cause of deaths after postmortem was TBI (73.2%) which was further evaluated and categorized into EDH (3.6%), SDH (3.6%), and Intracerebral Hemorrhage (8.9%) and diffuses axonal injury (16.1%). We observed that those patients who got severe traumatic brain injury got very low Revised Trauma Score described as MORGUE at the same time GCS below 5. The same findings were found in another study whereby in 13 cases, the clinical cause of death and the cause of death as determined by autopsy were congruent [28]

In this study found that mortality rate due to TBI within twenty four hours was 88% and 12% within 7 days of follow up by using RTS scored (10-3). In another study it was found that 37% patients died secondary to TBI, and one death with good score of 12 whom had chest injury and bilateral femoral fractures [29]

Another study also found that among patients with severe TBI, 58% had associated trauma, mostly in the skeletal system [30]. But this was contrary to another study which found that 17% of the patients sustained TBI but there was no statistic significance between those with TBI and those without TBI [31]

Majority of patients died due to septicemia with RTS score of (10-3) because of open fractures, and the observation was statistically significant. This findings corroborate with another study which found that sepsis (3.1-17%) and multi-organ failure (MOF) (1.6-9%) continue to be predominant causes of late death [32]

CHAPTER FIVE

5.0 CONCLUSION

This study has revealed that most of early outcome of polytrauma is challenging condition to treat in our set up as we have observed death and septicemia which usually occurred within 24 hours and within 7 days of follow up.

Majority of injuries were caused by motor traffic crashes about 85.7%

Septicemia (12%), occurred within study period was defined according to SIRS parameters defined above. Traumatic Brain Injuries accounted for the most frequent cause of mortality, suggesting that more research should be provided to minimize the degree of injury and improve the outcome for head injured patients

5.1 RECOMMENDATIONS

- Improvement of management of TBI patients within twenty four hours.
- Postmortem results should be associated with clinical cause of deaths which will help clinicians to improve the management of the patients.
- Further research should be done to establish national wide records of polytrauma.

5.1 STUDY LIMITATION

- The study was done on tertiary hospitals MOI and MNH EMD's therefore the mild and very severe polytraumatic cases were taken care in the regional hospitals. Moreover, time was limited

REFERENCES

1. Kroupa, J., [Definition of "polytrauma" and "polytraumatism"]. *Acta Chir Orthop Traumatol Cech*, 1990. **57**(4): p. 347-60.
2. Tamim, H., et al., Trauma epidemiology and outcome in a developing country: perspectives from a university teaching hospital in Beirut. *Int J Inj Contr Saf Promot*, 2006. **13**(4): p. 245-9.
3. Keel, M. and O. Trentz, Pathophysiology of polytrauma. *Injury*, 2005. **36**(6): p. 691-709.
4. Holbrook, T.L., et al., Outcome after major trauma: discharge and 6-month follow-up results from the Trauma Recovery Project. *J Trauma*, 1998. **45**(2): p. 315-23; discussion 323-4.
5. Zafar, H., et al., Registry based trauma outcome: perspective of a developing country. *Emerg Med J*, 2002. **19**(5): p. 391-4.
6. Kam, C.W., et al., Outcome of major trauma patients in a Hong Kong general hospital. *Eur J Emerg Med*, 1998. **5**(3): p. 297-306.
7. Lecky, F., M. Woodford, and D.W. Yates, Trends in trauma care in England and Wales 1989-97. UK Trauma Audit and Research Network. *Lancet*, 2000. **355**(9217): p. 1771-5.
8. Chalya, P.L., et al., Injury characteristics and outcome of road traffic crash victims at Bugando Medical Centre in Northwestern Tanzania. *J Trauma Manag Outcomes*, 2012. **6**(1): p. 1.

9. Murlidhar, V. and N. Roy, Measuring trauma outcomes in India: an analysis based on TRISS methodology in a Mumbai university hospital. *Injury*, 2004. **35**(4): p. 386-90.
10. Otieno, T., et al., Trauma in rural Kenya. *Injury*, 2004. **35**(12): p. 1228-33.
11. Karwan, K., [Evaluation of patients with polytrauma treated in the emergency department]. *Pol Merkur Lekarski*, 2009. **27**(160): p. 296-301.
12. Accidents and the Third World. *World Dev Forum*, 1985. **3**(11): p. 2.
13. Pape, H.C., et al., Evaluation and outcome of patients after polytrauma--can patients be recruited for long-term follow-up? *Injury*, 2006. **37**(12): p. 1197-203.
14. Zander, J., [Polytrauma as a cause of multiple organ failure]. *Anasth Intensivther Notfallmed*, 1989. **24**(4): p. 216-20.
15. Bouamra, O., et al., A new approach to outcome prediction in trauma: A comparison with the TRISS model. *J Trauma*, 2006. **61**(3): p. 701-10.
16. Dereeper, E., R. Ciardelli, and J.L. Vincent, Fatal outcome after polytrauma: multiple organ failure or cerebral damage? *Resuscitation*, 1998. **36**(1): p. 15-8.
17. Faist, E., et al., Multiple organ failure in polytrauma patients. *J Trauma*, 1983. **23**(9): p. 775-87.
18. Di Saverio, S., et al., Predictive factors of morbidity and mortality in grade IV and V liver trauma undergoing perihepatic packing: single institution 14 years experience at European trauma centre. *Injury*, 2012. **43**(9): p. 1347-54.

19. Boyd, C.R., M.A. Tolson, and W.S. Copes, Evaluating trauma care: the TRISS method. Trauma Score and the Injury Severity Score. *J Trauma*, 1987. **27**(4): p. 370-8.
20. Kobusingye, O.C. and R.R. Lett, Hospital-based trauma registries in Uganda. *J Trauma*, 2000. **48**(3): p. 498-502.
21. Champion, H.R., et al., The Major Trauma Outcome Study: establishing national norms for trauma care. *J Trauma*, 1990. **30**(11): p. 1356-65.
22. Raja, R.S., Traumatology in rural Kenya. Role of simple X-ray services. *Diagn Imaging*, 1982. **51**(3-4): p. 187-92.
23. Broos, P.L., et al., Multiple trauma in elderly patients. Factors influencing outcome: importance of aggressive care. *Injury*, 1993. **24**(6): p. 365-8.
24. Dittmer, H., E. Faist, and K.L. Lauterjung, [Multiple organ failure--the most important complication in polytraumatized patients]. *Zentralbl Chir*, 1983. **108**(7): p. 385-95.
25. Demetriades, D., et al., Trauma fatalities: time and location of hospital deaths. *J Am Coll Surg*, 2004. **198**(1): p. 20-6.
26. Ahmad, H.N., Evaluation of revised trauma score in polytraumatized patients. *J Coll Physicians Surg Pak*, 2004. **14**(5): p. 286-9.
27. Korosec Jagodic, H., K. Jagodic, and M. Podbregar, Long-term outcome and quality of life of patients treated in surgical intensive care: a comparison between sepsis and trauma. *Crit Care*, 2006. **10**(5): p. R134.

28. Buschmann, C.T., et al., Clinical diagnosis versus autopsy findings in polytrauma fatalities. *Scand J Trauma Resusc Emerg Med*, 2010. **18**: p. 55.
29. Probst, C., et al., Late death after multiple severe trauma: when does it occur and what are the causes? *J Trauma*, 2009. **66**(4): p. 1212-7.
30. Groswasser, Z., M. Cohen, and E. Blankstein, Polytrauma associated with traumatic brain injury: incidence, nature and impact on rehabilitation outcome. *Brain Inj*, 1990. **4**(2): p. 161-6.
31. Zehtabchi, S., et al., Identifying traumatic brain injury in patients with isolated head trauma: are arterial lactate and base deficit as helpful as in polytrauma? *Emerg Med J*, 2007. **24**(5): p. 333-5.
32. Pfeifer, R., et al., Patterns of mortality and causes of death in polytrauma patients--has anything changed? *Injury*, 2009. **40**(9): p. 907-11.

APPENDICES

Appendix I: Questionnaire

PART 1

A: Demographic characteristics

1. Name
2. ID Number
3. Age
4. Sex Male
Female
5. Address.....
6. Date and time of admission/...../..... Time.....:.....
7. Date and time of Injury/...../..... Time.....:.....
8. Next of kin Name
- Telephone:
9. Patient cell phone.....
10. Occupational
 1. Peasant
 2. Formal employment
 3. Petty traders
 4. Unemployed
 5. Casual laborer
 6. Others (specify).....

B: Clinical assessment

11. RTS Description

This will be done on arrival at Emergency department

GCS	Point	SBP	Point	RR	Point
15 – 13	4	>89	4	>29	4
12 – 9	3	76 – 89	3	10 – 29	3
8 – 6	2	50 – 75	2	6 – 9	2
5 – 4	1	1 – 49	1	1 – 5	1
3	0	0	0	0	0

Total score.....

12. CAUSE OF INJURY

1. Motor traffic crash
2. Fall from height
3. Burn
4. Assault
5. Others (specify).....

13. If yes to motor traffic crashes go to question below

14. Motor Traffic Crush (MTC)

1. Passenger
2. Driver
3. Pedestrian
4. Motorcyclist
5. Others

15. Regions affected

Head

Neck

Thorax

Abdomen

Upper extremities - Open fracture

- Closed fracture

Lower extremities - Open fracture

- Closed fracture

Spine - Yes paralysis

- No paralysis

16. Time of Hospital stay in (days)

17. Follow up after 24 hours (RTS score)

GCS	Point	SBP	Point	RR	Point
15 – 13	4	>89	4	>29	4
12 – 9	3	76 – 89	3	10 – 29	3
8 – 6	2	50 – 75	2	6 – 9	2
5 – 4	1	1 – 49	1	1 – 5	1
3	0	0	0	0	0

Total score

18. Parameters

Pulse rate..... Beats/ min.

Temperature °C.

Number of leucocytes...../mm³

19. Types of definitive treatment given

1. Open reduction and internal fixation
2. Laparotomy
3. Surgical debridement and external fixation
4. Craniotomy
5. Others (specify).....

20. Complication occurred

1. Disseminated Intravascular Coagulopathy
2. Multiple Organ Dysfunction Syndrome
3. Multiple Organ Failure
4. Sepsis / septicemia
5. Death
6. Septic shock
7. Others (specify).....

21. 1st week

GCS	Point	SBP	Point	RR	Point
15 – 13	4	>89	4	>29	4
12 – 9	3	76 – 89	3	10 – 29	3
8 – 6	2	50 – 75	2	6 – 9	2
5 – 4	1	1 – 49	1	1 – 5	1
3	0	0	0	0	0

Total score

22. Parameters

Pulse rate..... Beats/min.

Temperature.....°C.

Number of leucocytes...../mm³

23. Complication occurred

1. Disseminated Intravascular Coagulopathy
2. Multiple Organ Dysfunction Syndrome
3. Multiple Organ Failure
4. Sepsis / septicemia
5. Death
6. Septic shock
7. Others (specify).....

24. Types of definitive treatment given

1. Open reduction and internal fixation
2. Laparotomy
3. Surgical debridement and external fixation
4. Craniotomy
5. Others (specify).....

25. Revised Trauma Score

This will be done during second week of followup.

GCS	Point	SBP	Point	RR	Point
15 – 13	4	>89	4	>29	4
12 – 9	3	76 – 89	3	10 – 29	3
8 – 6	2	50 – 75	2	6 – 9	2
5 – 4	1	1 – 49	1	1 – 5	1
3	0	0	0	0	0

Total score

26. Parameters

Pulse rate..... Beats/min.

Temperature.....°C.

Number of leucocytes...../mm³

27. Complication occurred

1. Disseminated Intravascular Coagulopathy
2. Multiple Organ Dysfunction Syndrome
3. Multiple Organ Failure
4. Sepsis / septicemia
5. Death
6. Septic shock
7. Others (specify).....

28. Types of definitive treatment given

1. Open reduction and internal fixation
2. Laparotomy
3. Surgical debridement and external fixation
4. Craniotomy
5. Others (specify).....

29. Causes of deaths

1. Visceral injury
2. Traumatic Brain Injury
3. Septicemia
4. Chest injuries
5. Others (septicemia)

30. If TBI (Traumatic Brain Injury)

1. Acute Epidural Hematoma
2. Subdural hematoma
3. Intracerebral hematoma
4. Axonal diffuse injury
5. Others (specify).....

Appendix II: Dodoso la Kiswahili

SEHEMU YA KWANZA

A: UTAMBULISHO/ MAELEZO YA MGONJWA

1. Kifupi cha jina la mgonjwa
2. Namba ya utambulisho hospitalini
3. Umri wa mgonjwa
4. Jinsia mme mke.....
5. Anuani/ makazi
6. Tarehe na muda wa kulazwa Tar muda.....
7. Tarehe na muda alipoumia Tar muda
8. Mlezi au ndugu wa karibu: jina.....simu.....
9. Namba ya simu ya kiganjani ya mgonjwa
10. Kazi
 1. Mkulima
 2. Ameajiliwa
 3. Mfanyabiashara ndogondogo
 4. Hakuajiliwa
 5. Kibarua
 6. Nyingine (itaje)

B. UCHUNGUZI MGONJWA:

11. Alama za uchunguzi baada ya majumuisho (RTS)

GCS	Point	SBP	Point	RR	Point
15 – 13	4	>89	4	>29	4
12 – 9	3	76 – 89	3	10 – 29	3
8 – 6	2	50 – 75	2	6 – 9	2
5 – 4	1	1 – 49	1	1 – 5	1
3	0	0	0	0	0

Jumla ya alama

12. Sababu za ajali

1. Ajali ya gari
2. Kuanguka toka juu
3. Kuungua moto
4. Magomvi
5. Nyingineyo (itaje)

13. Kama ni ajali ya gari jibu swali namba 14

14. Ajali ya gari

1. Abiria
2. Dereva
3. Mwenda kwa miguu
4. Mwendesha pikipiki
5. Nyingineyo (itaje)

15. Sehemu aliyoumia/ dhurika:

kichwa

Shingo

Tumbo

Mkono: mvunjiko wenye kidonda

Mvunjiko bila kidonda

Mguu: Mvunjiko wenye kidonda

Mvunjiko bila kidonda

Uti wa mgongo: Amepooza

Hakupooza

16. Muda mgonjwa aliokaa hospitalini tangu alipolazwa wodini (siku).....

17. Matokeo ya ufuatiliaji baada ya masaa 24, (RTS)

GCS	Point	SBP	Point	RR	Point
15 – 13	4	>89	4	>29	4
12 – 9	3	76 – 89	3	10 – 29	3
8 – 6	2	50 – 75	2	6 – 9	2
5 – 4	1	1 – 49	1	1 – 5	1
3	0	0	0	0	0

Jumla ya alama

18. Vigezo vya hali ya mgonjwa

.Mapigo ya moyo Mapigo/dakika

.Joto la mwilicentigrade

.Kiasi cha chembechembe nyeupe za damumm³

Matibabu yaliyotolewa wakati wa kupokelewa

1. Upasuaji wa urekebishaji wa mfupa uliovunjika na vyuma vya ndani
2. Upasuaji wa uchunguzi wa tumbo
3. Upasuaji wa kusafisha vidonda na vyuma vya nje
4. Upasuaji wa kichwa (fuvu)
5. Nyingineyo (itaje)

19. Madhara zaidi yaliyojitokeza wakati alipofika hospitalini

1. Damu kushindwa kuganda mwilini
2. Viungo vingi kutofanya kazi
3. Maambukizi ya vijasumu (bakteria)
4. Kifo
5. Kuzimia baada ya maambukizi ya vijasumu
6. Nyingineyo (itaje)

20. Alama za ufuatiliaji baada ya wiki moja ya uchunguzi (RTS)

GCS	Point	SBP	Point	RR	Point
15 – 13	4	>89	4	>29	4
12 – 9	3	76 – 89	3	10 – 29	3
8 – 6	2	50 – 75	2	6 – 9	2
5 – 4	1	1 – 49	1	1 – 5	1
3	0	0	0	0	0

Jumla ya alama

21. Vigezo baada ya wiki moja:

.Mapigo moyomapigo/dakika

.Joto la mwiliCentigredi

.Kiasi cha chembechembe nyeupe za damu mwilini mm³

22. Madhara zaidi yaliyojitokeza baada ya wiki moja:

1. Damu kushindwa kuganda mwilini
2. Viungo vingi kutofanya kazi
3. Viungo kutofanya kazi kabisa
4. Maambukizi ya vijasumu (bakteria)
5. Kuzimia baada ya maambukizi ya vijasumu
6. Nyingineyo (itaje)

23. Madhara yaliyotokea baada ya wiki moja:

1. Upasuaji wa ulekebishaji wa mfupa uliovunjika
2. Upasuaji wa uchunguzi wa tumbo
3. Upasuaji wa kusafisha vidonda na vyuma vya nje
4. Upasuaji wa mfupa wa kichwa (fuvu)
5. Nyingineyo (taja)

24. Alama za ufuatiliaji wa uchunguzi baada ya wiki mbili (RTS):

GCS	Point	SBP	Point	RR	Point
15 – 13	4	>89	4	>29	4
12 – 9	3	76 – 89	3	10 – 29	3
8 – 6	2	50 – 75	2	6 – 9	2
5 – 4	1	1 – 49	1	1 – 5	1
3	0	0	0	0	0

Jumla ya alama

25. Vigezo vya uchunguzi baada ya wiki mbili:

.Mapigo ya moyo mapigo/dakika

.Joto la mwili Centgredi

.Kiasi cha chembechembe nyeupe za damumm³

26. Madhara zaidi baada ya wiki mbili za matibabu

1. Damu kushindwa kuganda mwilini
2. Viungo vingi kutofanya kazi

3. Viungo kutofanya kazi kabisa
 4. Maambukizi ya vijasumu (bakteria)
 5. Kifo
 6. Kuzimia baada ya maambukizi ya vijasumu
 7. Nyingineyo (taja)
27. Aina ya matibabu yaliyotolewa baada ya wiki mbili
1. Upasuaji wa ulekebishaji wa mfupa uliovunjika
 2. Upasuaji wa uchunguzi wa tumbo
 3. Upasuaji wa kusafisha vidonda na vyuma vya nje
 4. Upasuaji wa mfupa wa kichwa (fuvu)
 5. Nyinginezo (taja)
28. Sababu za kifo
1. Kuharibika viungo vya tumboni
 2. Kuharibika ubongo
 3. Maambukizi vijasumu na uozo
 4. Kuumia kifua
 5. Nyinginezo (taja)
29. Kama ubongo umeumia
1. Kuvia damu nje ya ubongo
 2. Kuvia damu katika ubongo
 3. Kuvia damu ndani ya ubongo
 4. Kuharibika ubongo
 5. Nyinginezo (taja)

Appendix II: Informed Consent to Participate in the Research

Introduction

The aim of this study; early outcome of traumatic patients attended at MOI and MNH EMD. The participation is freely and voluntarily. If you decide not to participate in the research it will not affect the access to the health services at any health facility in the United Republic of Tanzania including MOI/MNH.

Benefits

There are no direct benefits participant's gets in this research but you will be appreciated as one of contributors in findings obtained from early outcome of polytrauma in our country at large and better understanding of path physiology of polytrauma.

Risks

The participants will not get any serious risks from this research, but follow up done in two weeks will involve investigations such as full blood picture and postmortem for the participants who will die within study period.

Confidentiality

The information obtained from this research will be confidential and will only be used for the betterment of provision health care in our country.

I will be glad to receive your consent in the participation for this research.

DR. KENNEDY NCHIMBI

Signature Investigator

Communication

For any query concerning this research, please do not hastate to contact

DR. KENNEDY NCHIMBI who is the principal investigator, Muhimbili University of Health and Allied Sciences (MUHAS).P.O Box 65492. Mobile number +255 764 004 488

If you have queries concerning your rights as a participant in the research, please contact:

Prof. ABOUD, MD, MMed, The Director of research and publications

Muhimbili University of Health and Allied Sciences (MUHAS).P.O Box 65001 Dar es salaam.Tel.0222151489.

I will be grateful if you will agree to participate in this study.

I..... (Participant/ Relative)

I have read and understood the information provide to me as it is written also my questions have been properly answered by the investigator. I personally without any coercion I agree to participate in this research.

Name of ParticipantTel.....

Signature..... (Participant) Date.....

Appendix IV: Consent Form (English Version)

My name is from Muhimbili University of Health and Allied Sciences.

I am conducting a study in early outcome of polytrauma. The information obtained will provide the descriptive information necessary to the practice regarding management of polytraumatic patients.

There is no risk to you if you agree to participate in the assessment. Your participation is absolutely voluntary and there is no penalty for refusing to participate. You are free to ask any question and you may stop to participate in this assessment any time

Do you have any question?

Would you like to participate?

Sign of participant

Date

Appendix V: Consent Form (Swahili Version)**Ridhaa ya Kushiriki katika Utafiti****Utangulizi**

Lengo la utafiti huu ni kufahamu madhara yatokanayo na ajali, mivuno na mengineyo wanapofika katika vitengo hivi vya dharura kwa wagonjwa mahututi. Ushiriki katika utafiti huu ni hiari. Iwapo utahiari kutoshiriki utafiti, haitaathiri huduma upatazo katika kituo/hospitali yoyote katika Jamhuri ya Muungano wa Tanzania ikiwemo MOI/MNH.

Faida

Hakuna faida ya mojawamoja utakayopata kutokana kushiriki katika utafiti huu bali utathaminiwa kama mojawapo wa watu waliochangia kupatikana taharifa za utafiti husika katika jamii yetu.

Madhara

Washiriki hawatapata madhara yoyote makubwa kutokana na utafiti huu kwa kuwa uangalizi/ufuatiliaji wa taharifa hizi katika majuma mawili yatahusisha upimaji wa picha ya damu, na uchunguzi wasababu za kifo endapo mshiriki atafariki dunia (postmortem).

Usiri

Taarifa zote zipatikanazo kutokana na utafiti huu zitatumika kwa usiri mkubwa na zitatumika kuboresha taaluma kwa watoa huduma za afya, na kutoa mwelekeo katika changamoto mbalimbali hasa kupambana na dharura katika hospitali zetu.

Nitashukuru kupata ridhaa yako ya kushiriki utafiti huu.

DR. KENNEDY NCHIMBI,

SahihiMtafiti

Mawasiliano

Kwa maswali yoyote yahusuyo utafiti, tafadhali usisite kuwasiliana na mtafiti DR. KENNEDY NCHIMBI simu ya mkononi +255 764 004488 Chuo Kikuu cha Afya na Sayansi za Tiba (MUHAS) SLP 65492 DSM. Iwapo una swali juu ya haki yako kama mshiriki katika utafiti wasiliana na:

Prof. ABOUD, Mkurugenzi wa machapisho na utafiti, S.L.P 65001 Dar es salaam. Simu 0222151489.

Mimi (Mshiriki)

Nimesoma na kuelewa habari zilizotolewa kwangu kama zilivyoandikwa na pia nimejibiwa maswali yangu kwa usahihi na mtafiti. Mimi bila kushawishiwa nimekubali kushiriki utafiti huu.

Jina la MshirikiSIMU.....

Sahihi..... (Mshiriki)

Tarehe.....