



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



MONA MAGHRABY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



MONA MAGHRABY



Updated Trends of Fractures, A Single Trauma Centre Prospective Observational Study

An observational study

Submitted for Partial Fulfillment of Master Degree in Orthopedic Surgery

Presented By

Amr Mamdouh AbdelAziz Ezzat Bibars
M.B.B.Ch., Faculty of Medicine - Ain Shams University

Under Supervision of

Prof. El-Zaher Hassan El-Zaher

*Professor of Orthopaedic Surgery
Faculty of Medicine - Ain Shams University*

Dr. Radwan Gamal El Deen Abdelhamid

*Associate Professor of Orthopaedic Surgery
Faculty of Medicine - Ain Shams University*

**Faculty of Medicine
Ain Shams University
2021**

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

لَسْبَّانَكَ لَا عِلْمَ لَنَا
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
الْعَلِيمُ الْعَظِيمُ

صدق الله العظيم

سورة البقرة الآية: ٣٢

Acknowledgment

*First and foremost, I feel always indebted to **ALLAH**,
the Most Kind and Most Merciful.*

*I'd like to express my respectful thanks and profound gratitude
to **Prof. ELzaher Hasan ELzaher** Professor of Orthopaedic
Surgery, Faculty of Medicine- Ain Shams University for his keen
guidance, kind supervision, valuable advice and continuous
encouragement, which made possible the completion of this work.*

*I am also delighted to express my deepest gratitude and thanks
to **Dr. Radwan Gamal El Deen Abdel Hamid**, Associate
Professor of Orthopaedic Surgery, Faculty of Medicine, Ain Shams
University, for his kind care, continuous supervision, valuable
instructions, constant help and great assistance throughout this work.*

*I would like to express my hearty thanks to all **my family** for
their support till this work was completed.*

List of Contents

Title	Page No.
List of Table	i
List of Figures	iv
List of Abbreviations	vii
Introduction	1
Aim of the Study	3
Review of Literature.....	4
Patients and Methods	32
Results	35
Discussion	77
Conclusion.....	85
Recommendations	87
Summary	85
References	89
Arabic Summary	----

List of Table

Fig. No.	Title	Page No.
Table (1):	The distribution of the total patients as regards the age group, the gender, the side of fracture and the number of fractures these patients suffered.....	35
Table (2):	The number of patients who had bones that were fractured twice or bilaterally in the same patient.	36
Table (3):	Distribution of fractures per body area divided as follows, upper limb, lower limb, pelvis and spine, peri prosthetic fractures.	37
Table (4):	Numbers and percentages of upper limb bones fractures. Percentages were calculated from the total number of fractures.	38
Table (5):	Numbers and percentages of lower limb bones fractures. Percentages were calculated from the total number of fractures.	40
Table (6):	Fractures of pelvis, spine and periprosthetic fractures. Percentages were calculated from the total number of fractures.	41
Table (7):	The age group distribution of the commonly fractured bones	46
Table (8):	Median, Mean and Range for each of the common six bones.	46
Table (9):	Gender distribution of the six common fractured bones. Results are plotted with the percentage calculated from the total number of males and females patients.....	52
Table (10):	Incidence of past operations done underwent by patients.	53
Table (11):	The incidence of relevant comorbidities among the patients.....	54
Table (12):	Prevalence of comorbidities in patients with fractures of the six common bones.....	55

List of Table *(cont...)*

Fig. No.	Title	Page No.
Table (13):	Skin condition status of the patients	56
Table (14):	Time till presentation of patients to the emergency department in hours.	56
Table (15):	Time till presentation in hours in relation to number of fractured bones per patient.....	58
Table (16):	Time till presentation in hours in relation to the common six fractured bones	59
Table (17):	The incidence of different modes of trauma, Percentages were calculated from the total number of fractures.	60
Table (18):	Modes of trauma incidence for the common six bones. Percentages were calculated from the total number of fractures of each bone.	61
Table (19):	Energy of trauma incidence, percentages were calculated from the total number of patients.....	62
Table (20):	Incidence of different forms of trauma energy (high vs low) for each of the six common bones	63
Table (21):	Associated injures in relation to the number of fractured bones	65
Table (22):	Associated injuries incidence for the six common bones	66
Table (23):	Number and percentages of different drugs and recreational agents taken by patients. Percentages were calculated from total number of patients.	67
Table (24):	Number and percentage of each drug and recreational agent intake for each of common six bones.....	68
Table (25):	Number and percentage of operative and conservative strategies	69
Table (26):	Numbers and percentages of operative and conservative management of six common bones.....	70
Table (27):	Fracture patterns and site in humerus bone	72

List of Table *(cont...)*

Fig. No.	Title	Page No.
Table (28):	Fracture patterns and site of Radius bone	73
Table (29):	Fracture patterns and site of Ulna bone.	73
Table (30):	Fracture patterns and sites of Femur bone	74
Table (31):	Fracture patterns and sites in Tibia bone.	75
Table (32):	Fractures patterns of the malleolar segment	76

List of Figures

Fig. No.	Title	Page No.
Figure (1):	The number of deaths in million (black dotted line) plotted against the time in years due to RTA	5
Figure (2):	Pie chart representations of the different sites of injuries and the corresponding amount of disability following polytrauma.....	7
Figure (3):	The percentage of patients experiencing problems in six domains of daily living one year after multiple trauma and intensive care unit discharge.....	7
Figure (4):	Pie chart representation of incidence of depression in polytrauma patients. About 48% developed depression.	10
Figure (5):	A diagram of dashboard injury and expected trauma from such an injury.	21
Figure (6):	CT scan picture demonstrating flexion distraction vertebral injury following high speed restrained passenger in a road traffic accident.	21
Figure (7):	The number of RTA resulting from cars and trains in Egypt over the period between (2013-2019) , CAPMAS.....	27
Figure (8):	Rate of car accidents fatality in Egypt according to local data CAPMAS.	28
Figure (9):	The accident incidence rate.	29
Figure (10):	The accident injury rate	29
Figure (11):	The accident severity rate in Egypt	30
Figure (12):	Trends in reported road traffic deaths.....	30
Figure (13):	Pie chart representation of the distribution of fractures per body area.....	37

List of Figures *(cont...)*

Fig. No.	Title	Page No.
Figure (14):	Bar graph representation of the distribution of fractures in the upper limb bones, percentages were calculated from the total number of fractures.....	39
Figure (15):	Bar graph representation of fractures of the lower limb. Percentages were calculated from the total number of fractures.....	41
Figure (16):	Bar graph representation of the pelvis, spine and periprosthetic fractures	42
Figure (17):	Bar graph representation of all fractures with their percentages from the overall number of fractures.	43
Figure (18):	Bar graph representation of frequency of overall fractures.	44
Figure (19):	Bar graph representation of the incidence distribution of fractures of femur	47
Figure (20):	Bar graph representation of the incidence distribution of radius fractures	48
Figure (21):	Bar graph representation of the incidence distribution of tibia fractures. Tibial fractures had one peak at age (35-40 years).....	49
Figure (22):	Bar graph representation of the incidence distribution of humerus fractures	50
Figure (23):	Bar graph representation of incidence distribution of Malleolar segment fractures. One peak is noted at (25-30 years). Another peak at 45-50 years and a smaller peak noticed at (60-65) years.....	51
Figure (24):	Bar graph representation of incidence distribution of ulna fractures	51
Figure (25):	Bar graph representation of medical comorbidities, Percentages were calculated from the total number of fractures	54

List of Figures *(cont...)*

Fig. No.	Title	Page No.
Figure (26):	Pie chart representation of time till presentation of patients to the emergency department in hours.	57
Figure (27):	Bar graph representation of incidence of modes of trauma, Percentages were calculated from the total number of fractures.	60
Figure (28):	Pie chart representation of incidence of energy of trauma	62
Figure (29):	Bar graph representation of the incidence of fracture due to each form of energy(high vs low) for the common six bones	64
Figure (30):	AO/OTA coding system	71

List of Abbreviations

Abb.	Full term
AO/OTA	<i>Association for Osteosynthesis-Orthopaedic Trauma Association</i>
COPD	<i>Chronic obstructive pulmonary disease</i>
DALYs	<i>Disability adjusted life years</i>
FFH	<i>Fall from height</i>
HRQoL	<i>Health Related Quality of Life</i>
ICECI	<i>International Classification of external causes of injury</i>
ISS	<i>Injury severity score</i>
PTH	<i>Parathormone</i>
RA	<i>Rheumatoid Arthritis</i>
RTA	<i>Road traffic accidents</i>
YLL	<i>Years of life lost</i>
STROBE	<i>Strengthening the Reporting of Observational Studies in Epidemiology</i>

INTRODUCTION

Trauma, specifically physical trauma, is the damage to the body caused by an external force. This may be caused by accidents, falls, hits, weapons, and other causes. In medicine, traumatology is defined as the study of wounds and injuries caused by accidents or violence to a person, together with the surgical therapy and repair of this damage⁽¹⁾.

Injury can be divided into two broad categories: intentional injuries and unintentional injuries. Intentional injuries are further subdivided into self-inflicted injuries, interpersonal violence and war-related violence, Unintentional injuries include road traffic accidents (RTA) and falls⁽²⁾.

Unintentional injuries are the leading cause of death below 40 years of age⁽³⁾ and they are accounted for most of the injuries' deaths with 1.8 million deaths per year⁽³⁾.

Unintentional injuries are responsible for about 10% of deaths and 16% of overall disabilities. Almost 90% of these injuries are occurring in low and low-middle income countries⁽⁴⁾.

Organized approaches to prevent and manage traumatic injuries and their consequences are needed. These approaches seek to set achievable standards for trauma treatment services which could realistically be made available to almost every injured person in the world. Accordingly, the resources that would be necessary to assure such care can be identified⁽⁵⁾.