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Trauma Review in Saudi Arabia, Single Trauma Center Experience

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Abstract: **Trauma is a major health problem which has a substantial number of injures. It is the first because that leads to death for Americans. Our study is conducted to estimate the incidence, types and outcomes of trauma in our center also to compare these outcomes between different years taking in consideration the most common trauma predictors. retrospective study aiming to identify the outcome of trauma cases in king Abdul-Aziz university hospital 40%of patients were Saudi, 60% non-saudi.28.5% below 12y of age, while 66.9% age between 12-60y, and 4.6% above 60y. 79.4% male. And 20.6% female 88% of all injured patients required hospital admission, while 7.6% discharged from ER and 3.9% die in ER. For the admitted patient 18.3% stayed less than 3 days, while37.3% styed for 3-7 days,36.5% had been admitted for less than month, and lastly 7.9% stayed more than month. 58% of all admitted patient didn't not require ICU admission while 35.5% admitted to ICU. Trauma outcome could not be assessed properly due to deficiency of documentation, lack of trauma system and no organization between the different facilities. Furthermore, trauma research is limited in our countries despite the huge number of trauma that we face each day. We recommend establishing a new trauma system and trauma registry**

Keywords: **Trauma, road traffic injuries, burn. Stop injuries, fall down.**

1. INTRODUCTIONS

Trauma is a major health problem which has a substantial number of injures. It is the first because that leads to death for Americans between one to forty-six years old. Also, it is the third cause of death in all ages. Each year, trauma causes 41 million ER visits and 2 million hospital admissions across the nation. While trauma injury accounts are 30% of all lives lost in the United states, Cancer accounts are 16%, and Heart disease accounts are 12%.[1] If we look at the economic burden of trauma, we will count around 671 billion dollar including health care costs and lost productivity. Burns are one of the trauma injures which have a high morbidity. According to the most recent data (2013) there are 450,000 burn injuries which require medical attention. Annually, 40,000 hospitalizations related to burn injury per year, and 3,400 fire, burn, or smoke inhalation deaths per year. Furthermore, in the middle east the trauma injuries are becoming a major health problem. Specifically, in the road traffic accidents (RTA), the trauma is the main reason for morbidity and mortality for all ages. In fact, current data from Egypt shows a road traffic fatality rate is 42 deaths per 100,000 persons. Nevertheless, RTAs are responsible for 1.8 percent of all deaths and 2.4 percent of all disability in the country.

Trauma injuries are increasing in most of developing countries including Saudi Arabia, which is one of the large countries in middle east occupying, almost four-fifth of the Arabian Peninsula with population more than 28 million moreover The united nations predict that our population will escalate up to 39.8 million by 2025 and 57.4 million by 2050. However, our

government gives a great attention to the health system by expanding and improving it over years. But we still face some challenges interim of health care data, statistics and trauma outcome documentations.

Patients following trauma will be either transferred to (ICU, medical department or surgical department which is considered as one of the most serious and common outcomes of trauma). There are many predictors for trauma outcomes such as (age, gender, marital state, level of education, social satisfaction, ICU stay, number of organs affected and severity of injury) they are all playing an important role in producing certain outcomes following trauma.[2]

Our study is conducted to estimate the incidence, types and outcomes of trauma in our center (King Abdul-Aziz University Hospital) (KAUH), this hospital is a major center in western region which serve most of the east side of Jeddah, also to compare these outcomes between different years taking in consideration the most common trauma predictors in order to develop an effective trauma care system and increase the survival rate among trauma patients.

2. METHODS

This is a cohort retrospective study aiming to identify the outcome of trauma cases in king Abdul-Aziz university hospital (KAUH), we looked for patients personal data (name, MRN, age, gender, nationality), trauma classified as (Road Traffic Accident (RTA), Stab Wound ,Gun shot, Pedestrian hit by car ,Falls, Burn and Drowning), we looked for patients ER data (Date of arrival, Date of initial treatment, Period of action, Kind of treatment received, Date of transfer from ER, ER stay, Final disposition, ICU admission, ICU length of stay, Length of hospital stay). The outcome was (Referral to other department, patient improved and discharged, and patient die, referred to other hospital). We looked for investigations ordered to each case (toxic test, alcohol test, CT brain, CT abdomen, CT spin, CT angiograph, chest X-ray, abdominal X ray, hand and foot X ray, U/S, CBC, U/E, LFT pregnancy test, tetanus, BUN, ECG, coagulation profile and blood grouping). Mode of patient transportation were (ambulance, private car, police car). We will review the patient's electronic profiles from hospital medical record from 2010-2015 and we will compare the rate of trauma between the years. The ethical approval was obtained from the KAU ethical committee.

3. RESULTS

40%of patients were Saudi , 60% non-saudi.28.5% below 12y of age, while 66.9% age between 12-60y, and 4.6% above 60y . 79.4% male. And 20.6% female

88% of all injured pt required hospital admission, while 7.6% discharged from ER and 3.9% die in ER. For the admitted patient 18.3% stayed less than 3 days, while37.3% styed for 3-7 days,36.5% had been admitted for less than month, and lastly 7.9% stayed more than month. 58% of all admitted patient didn't not require ICU admission while 35.5% admitted to ICU.

Type of trauma was commonly RTI 48.6%. followed by fall down 45.9%. then Stapp wound 33%. pedestrian 13%, burn 10.8%, drowning 6.8%., 2.7% gun shout .

Most of the injured patient came to ER using private cars 27.6% while 7.6 % came with ambulance and 65.6% no info

4. DISCUSSION

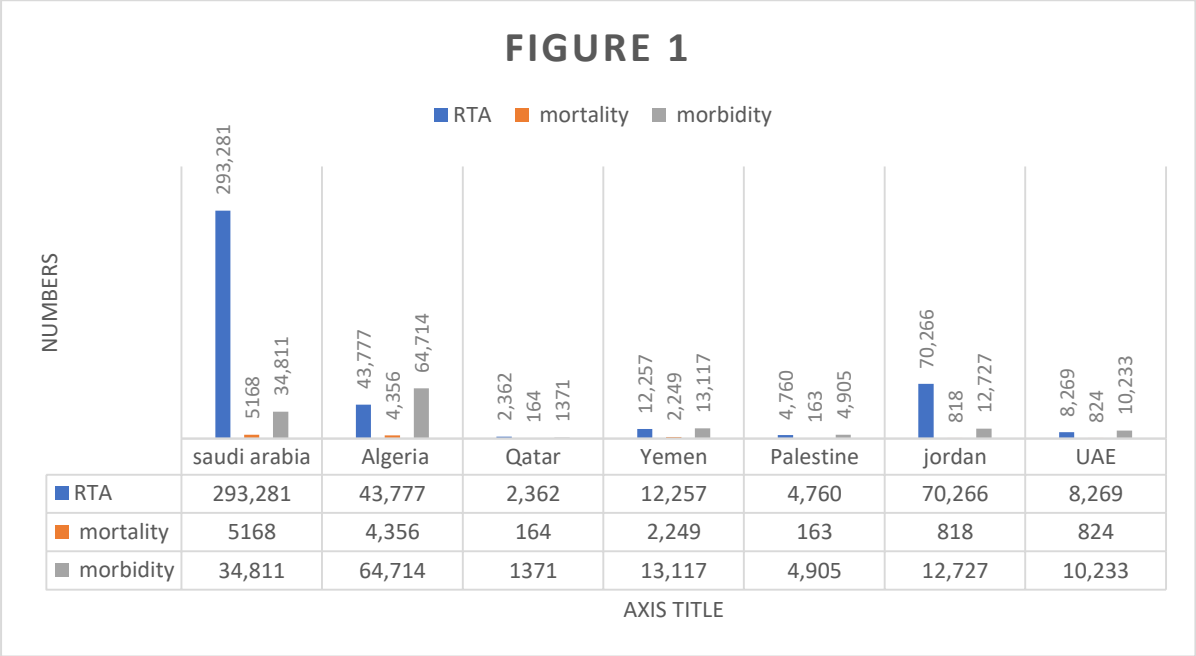
RTA known as the most common type of trauma injury worldwide, other types of trauma are burns, falls, drowning and near-drowning, bits, assaults and animal related injuries.

Jafa,*Et al* mentioned that in Iran RTAs are the most prevalent cause of injury and second leading cause of death, moreover 35 people die for every 1000 car. Furthermore, there is increasing number of using cars in developing countries compared to developed countries, despite huge effort of public education in traffic using new modalities to decrease the numbers of RTA as camera monitoring and Financial penalty, still we have enormous number of trauma injuries. This big number of trauma casualty cause a major burden on the world's economy with losses over 518 billion dollars per year. Specifically in Saudi Arabia data showed RTA Couse losses exceeding SR 21 billion per year which account 2.2-9% of the national income ,[3] In the same way road traffic accident cost Egypt EGP10 billion per year with an average EGP 500 per accident [4]

India has witnessed a 10-fold rise in the number of fatalities from 1970 to 2009 with one accident occurring every minute and one death every four minutes furthermore its reported that road traffic accident is the second frequent cause of death in young age group (5-14) years. Number of children mortality due to RTA where estimated as 9.4% of total RTA in India, Malaysia 15.5% and 13% in South Asia. [5] Mortality commonest in rural areas as it lake health care facilities, unsafe roads and low educations regarding the safety measures while driving a vehicle.

Barrimah *Et al* counted 23178 persons involved in the RTA during the year 2010 in qassiem region, 64% of them between 18-40 years of age, 16% were 40-50 years, while 9% above the age of 50. Same as our data 66.9 % of trauma victims were between 12-60 year of age, 28% were below the age of 12 years and 4.6% were above 60 years, almost half of the accidents occur in the day time, and 62% occurs in town while the rest occur out town.

Data from our study showed that RTA is the commonest type of trauma (27.5%) followed by fall down (26%) and the least frequent type is gunshot injuries (2%). Another study was done in east provenance of Saudi Arabia showed that 46% of the accident are RTAs according to red crescent society ambulance data during 1994. furthermore 80% of those patients are below age of 40 and 20% of them were children below age of 12.[6] Comparing to other Arab countries, Saudi Arabia is the upmost county having RTA followed by Jordan, Algeria whereas Qatar has the lowest numbers of RTAs. additionally, fatality rate was noticed to be superior in Saudi Arabia followed by Algeria and Yemen, and the least fatality rate were seen in Palestine. In regards of RTA related-morbidity it was uttermost in Algeria then Saudi Arabia, while Qatar has the least morbidity numbers.[7]



	saudi arabia	Algeria	Qatar	Yemen	Palestine	jordan	UAE
RTA	293,281	43,777	2,362	12,257	4,760	70,266	8,269
mortality	5168	4,356	164	2,249	163	818	824
morbidity	34,811	64,714	1371	13,117	4,905	12,727	10,233

Figure 1: Number of RTA related morbidity and mortality in Arab countries.[7]

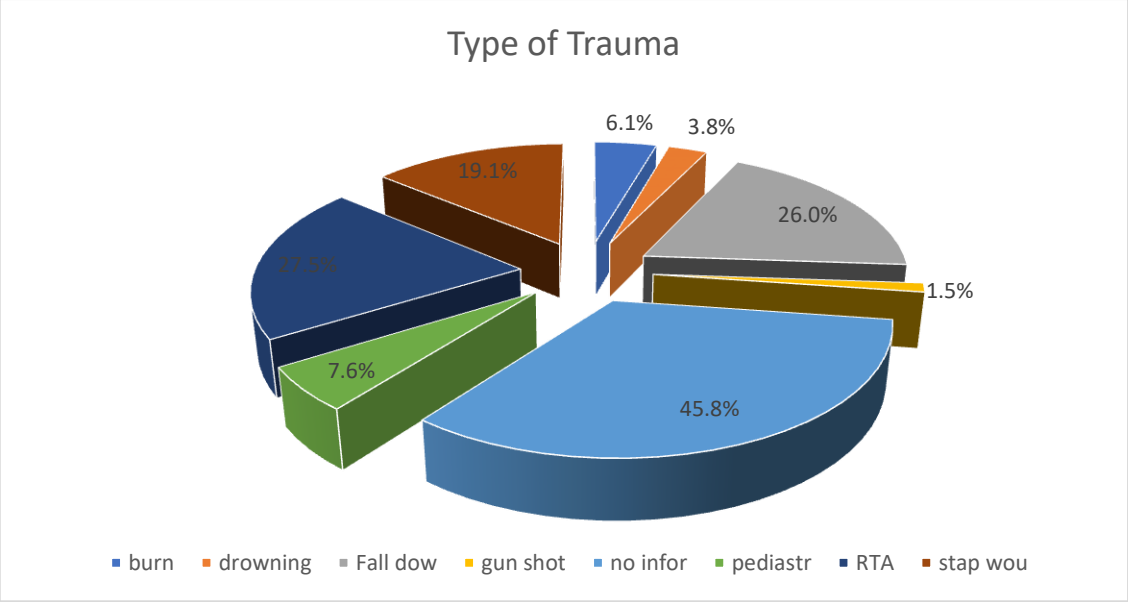


Figure 2: Types of trauma in KAUH from 2010 – 2016

According to our data 26% of our trauma victims were brought to ER by private car, 7.6% came by ambulances, 88% of the victims required admission while 7.8% improved and discharged from the ER in the other hand 3.9 % die before getting admission. Of all the trauma victims 93% of them presented with unstable blood pressure and 55.3% came with unstable heart rate, of those patient 35.4 % required ICU admissions in the other hand 64.6% of the unstable patients did not need ICU care. Around 50% of all ICU admission stayed from 1-5 days then transferred to the regular floor. 18% of the all patients admitted for 3 days' care, 37% stayed for 3-7 days, 36.5% required admission for more than 7 days.

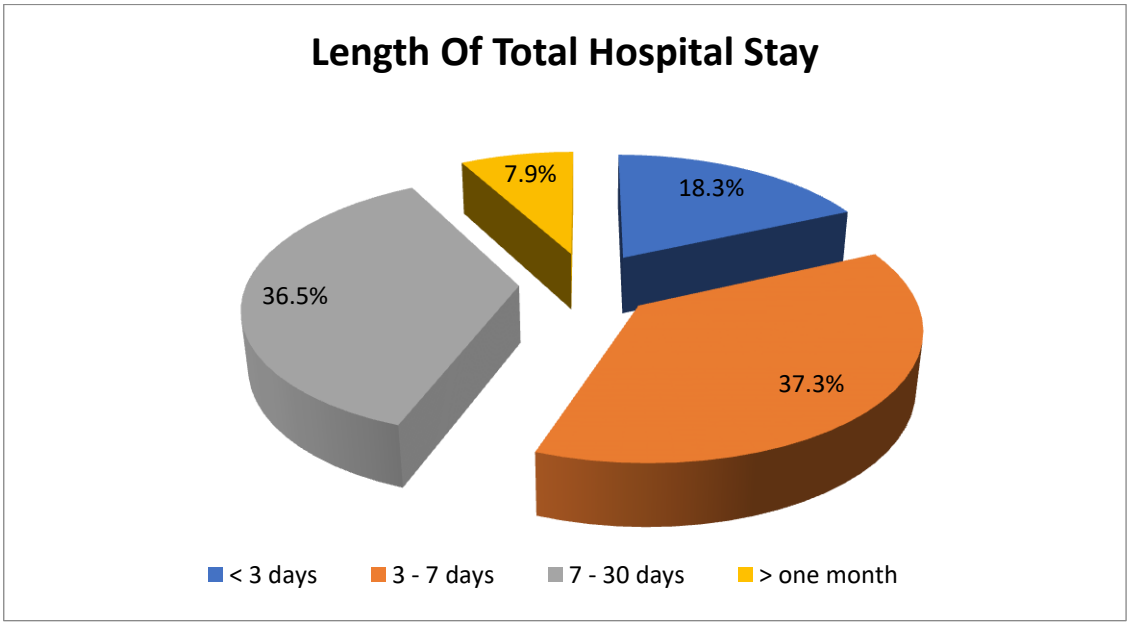


Figure 3: Length of total hospital stay for trauma victims in KAUH.

As a result of RTA head and facial injuries are the most frequent affected side with 30% injury rate and causing 20% of total deaths.[8] The Abdomen is the third most common area to be involved in trauma injuries, [9] penetrating injuries had a higher incidence of mortality compared to blunt trauma. In fact, 66% of abdominal injured patients have additional comorbid injuries. [10] More importantly, none of the victims were applying the seat belt at the time of accident nor children were seated in appropriate seats. [6]

In regards of pediatric age group, trauma is considered major cause of injuries, data from new Delhi India showed that RTA are the most frequent type of injury followed by fall from high,[11] furthermore , male to female ratio is 3:1, In contrast to our study, the overall pediatric trauma rate is 28.5%, fall down injury were the most frequent pediatric trauma 29.7% followed by RTA 21.6 %, the face and lips were the most affected area, 97% of oro-facial trauma is related to RTA, falls and blunt trauma of the face.[12] majority of the injuries took place at home during summer time. Additionally, kids who suffered from road traffic related injuries, only 5 % were applying seatbelt or helmet when injured. [13] while none of our victims were applying seat belt nor wearing helmets.

Burn injuries is a leading cause of mortality and morbidity worldwide, according to (world health organization). deaths are estimated to be 265 000 deaths every year. [14] Based on a study that was done in Portugal, 2000–2013 it was found that there is a mean of 1889 burn admissions/year and The total hospitalization rate was 18.9 hospitalizations/100,000 inhabitants/year[15] These high rates has a major impact on patients and healthcare costs, in the same way another study was done in USA during 2011 it showed that the number of patients receiving medical treatment following burn injuries accounted for 486,000[16] we calculated 2.7 % burn injuries in pediatric and 8% in adult age group .more importantly many studies reported that burns can be associated with depression and post-traumatic stress disorder accounting for 13-23% and 13-45% of cases, respectively [17] Furthermore, patients can be affected by the fire/smoke inhalation as it is accounted for total 2,745 deaths from residential fires.

5. CONCLUSION AND ADVISE

Trauma outcome could not be assessed properly due to deficiency of documentation, lack of trauma system and no organization between the different facilities. Furthermore, trauma research is limited in our countries despite the huge number of trauma that we face each day. We recommend to establish a new trauma system and trauma registry, train all

the staff (physician, nurses, technician) how to work in trauma situation and disasters, improve the notes, documentation to improve clinical care for the trauma victims in our community, more importantly to improve the trauma deaths and disabilities.

REFERENCES

[1] Anon National trauma institute

[2] Hasler R M, Srivastava D, Aghayev E, Keel M J, Exadaktylos A K and Schnüriger B 2014 First results from a Swiss level I trauma centre participating in the UK Trauma Audit and Research Network (TARN): prospective cohort study. Swiss Med. Wkly. 144 w13910

[3] Ansari S, Akhdar F, Mandoorah M and Moutaery K 2000 Causes and effects of road traffic accidents in Saudi Arabia. Public Health 114 37–9

[4] Ismail M a and Abdelmageed S M M 2010 Cost of Road Traffic Accidents in Egypt Int. J. Soc. Behav. Manag. Eng. 4 220–6

[5] Singh D, Singh S P, Kumaran M and Goel S 2015 Epidemiology of road traffic accident deaths in children in Chandigarh zone of North West India Egypt. J. Forensic Sci. 4–10

[6] Shanks N J, Ansari M and Ai-Kalai D 1994 Road traffic accidents in Saudi Arabia Public Health 108 27–34

[7] Barrimah I, Midhet F and Sharaf F 2012 Epidemiology of road traffic injuries in qassim region, saudi arabia: consistency of police and health data. Int. J. Health Sci. (Qassim). 6 31–41

[8] MARWAH S, AL-HABDAN I M, SANKARAN-KUTTY M and PARASHAR S Road traffic accident admissions in a university hospital in Saudi Arabia (A pilot study) Saudi Med. J. 11 389–91

[9] Saber A, Shams M, Farrag S, Ellabban G and Gad M 2012 Incidence, Patterns, and Factors Predicting Mortality of Abdominal Injuries in Trauma Patients N. Am. J. Med. Sci. 4 129

[10] Mohamed A A, Mahran K M and Zaazou M M 2010 Blunt abdominal trauma requiring laparotomy in poly-traumatized patients. Saudi Med. J. 31 43–8

[11] Babu A, Rattan A, Ranjan P, Singhal M, Gupta A, Kumar S, Mishra B and Sagar S 2016 Are falls more common than road traffic accidents in pediatric trauma? Experience from a Level 1 trauma centre in New Delhi, India Chinese J. Traumatol. 19 75–8

[12] Lawoyin T O, Lawoyin D O and Lawoyin J O 2002 Factors associated with oro-facial injuries among children in Al-Baha, Saudi Arabia. Afr. J. Med. Med. Sci. 31 37–40

[13] Hyder A A, Sugerman D E, Puvanachandra P, Razzak J, El-Sayed H, Isaza A, Rahman F and Peden M 2009 Global childhood unintentional injury surveillance in four cities in developing countries: a pilot study Bull World Heal. Organ 87 345–52

[14] Anon 2016 WHO | World Health Organization WHO

[15] Santos J V, Oliveira A, Costa-Pereira A, Amarante J and Freitas A 2016 Burden of burns in Portugal, 2000-2013: A clinical and economic analysis of 26,447 hospitalisations. Burns

[16] Centers for Disease Control and Prevention 2011 National Hospital Ambulatory Medical Care Survey : 2010 emergency department summary tables 1–39

[17] Van Loey N E E and Van Son M J M 2003 Psychopathology and psychological problems in patients with burn scars: epidemiology and management. Am. J. Clin. Dermatol. 4 245–72