



ORIGINAL- ARTICLE

Time Trend, Different Patterns and Distribution of Skull Fractures in Road Traffic Accidents

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Abstract

choosing this research to assess the relationship between mortality increases in Last year's and skull fractures in road traffic accidents.

Methodology: This is cross _sectional, analytical study conducted at Al-Nasiriyah city in mortuary of forensic medicine – Al-Hussain teaching hospital- Thi_Qar health directorate. The average number of head injury cases autopsies in the mortuary of forensic medicine in, Thi_Qar for period of last two years was considered as the baseline.

Results: trend in the types of fractures has remained almost the same during both 2021 and 2022. But there was (132.2%) increase in the number of different types of cars registered in in 2022 in comparison with that of 2021.

Conclusion: RTAs casualties and fatalities show increases during 2022 compared to that of 2021. The number of registered imported cars increased in parallel by (132.2%) during the same period _The most common types of casualties were skull fractures followed by lower limb fractures. Male preponderance was evident all through. _The commonest registered cause of RTAs was high speed followed by bad quality of roads and weather.

Keywords: time trend, skull fracture, RTA,2022.

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1 | INTRODUCTION

Death from road traffic accidents (RTA) and in particular Motor vehicle Traffic Accidents have been characterized worldwide as a hidden epidemic which affects all sectors of society. A well-known sequel of HI; HI causing SF from blunt or penetrating mechanisms, is the commonest cause of death and morbidity in all forms of trauma and the commonest cause of trauma among those attending the accidents and the emergency department with half of them being aged 14 years or less. (1)

Increased fatalities, disabilities, and hospitalizations due to road accidents, mostly from head injuries, have been linked to the country's expanding road network, motorization, and urbanization. This has resulted in significant socioeconomic costs nationwide.

Road traffic accidents are largely caused by poor road conditions, including absent guard rails, erosion, potholes, bad designs, and hazardous situations. (2)

Driver mistakes like racing, using a phone while driving, driving while intoxicated, etc. are also important contributing factors.

According to the latest WHO data published in 2020 Road Traffic Accidents Deaths in Iraq reached 10,726 or 7.32% of total deaths. The age adjusted Death Rate is 34.41 per 100,000 of population ranks Iraq #37 in the world. (3)

Doctors classify skull fractures by how severe they are and how much additional damage the injury has caused.

The different types of skull fracture include:

Simple fracture: Where the skull fractures without damaging the skin.

Linear fracture: Where the fracture is one thin line with no additional lines splintering from it and no compression or distortion of the bones.

Depressed fracture: Where the fracture causes displacement of the bone toward the brain.

Compound fracture: Where there is a break in the skin and a splintering of the skull bone. (2-4)

Some skull fractures can cause bleeding or swelling in their brain, which can compress the underlying brain tissue and result in brain damage. The skull X-ray is still a useful tool

In the management of injuries that are associated with SF. E.g., in the context of extradural hematomas (EDH), most EDHs occur at the base of the skull beneath the temporal lobe or over the lateral surface of the brain. This distribution corresponds not only to the course meningeal artery but also to the most common sites for a skull fracture [3]. of the middle

Occasionally, EDHs occur over the top (vertex) of the head or in the occipital region. In these cases, the hematoma is usually caused by a laceration of a dural venous sinus and is almost invariably associated with an overlying skull fracture. (5, 6)

Depressed SFs often require surgery to elevate the depressed bone fragments. If there are no adverse neurologic signs and the fracture is closed, repair may be done electively. Basal SFs involve the floor of the calvarium. Bruising may occur about the eye (raccoon sign) or behind the ear (Battle sign), suggesting a fracture involving either the anterior or middle fossa, respectively. Any associated CSF rhinorrhoea, or otorrhoea should be treated expectantly. Traumatic CSF leaks typically

stops within the first 7 to 10 days. Should a leak persist, lumbar CSF drainage can be implemented to seal the leak by lowering CSF volume and intracranial pressure. If this *therapy fails, surgical (7) exploration and overseeing of the defect with a facial patch graft is indicated. Less than 5% of patients actually require surgical repair. Tyson thinks that an open fissure fracture is not ordinarily an indication for the use of prophylactic antibiotics are no longer used and that their use in patients with who have open depressed fractures is controversial and there is no reason to use them in the majority of cases; however, they should be considered when there is brain tissue within the wound or when a skull xray reveals foreign bodies within the cranial cavity. (4-7)

2 | METHODOLOGY

This is cross _sectional, analytical study conducted at Al-Nasiriyah city in mortuary of forensic medicine – Al-Hussain teaching hospital- Thi_Qar health directorate. The average number of head injury cases autopsies in the mortuary of forensic medicine in, Thi_Qar for period of last two years was considered as the baseline. The pattern of study was quantitative based on collecting information from documents and records. population of Thi_Qar about 3 million my study includes the cadavers and patients of road traffic accidents brought to Al-Hussain teaching hospital and mortuary of forensic medicine, where the cause of death was due to head injury were included in the study. Ethical Consideration: Ethical approval consent had been attained from the scientific committee of community medicine department and ethical committee of health directorate, finally consent from all patients and relatives of died.

Supplementary information: *The online version of this article ([https://doi.org/10.52845/\(rrarjmcsc/2023/9-8-1\)](https://doi.org/10.52845/(rrarjmcsc/2023/9-8-1))) Contains supplementary material, which is available to authorized users.*

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A data sheet was prepared in special preparing way acceptable to for this study. that included all the

variables needed to achieve the objectives of the study. The variables are: age and sex of the patient, type and site of the injury and the clinical outcome.

SPSS version 26 has been used for quantify description of variables of interest and analyzed the proper link to reach the objectives.

3 | RESULTS

Distribution of RTAs casualties time trend and deaths by sex for the two years period 2021_2022. There has been an increase in total casualties in Thi_Qar with an increase in mortality in 2022 in comparison with that of 2021. Table 1 reveals the types of casualties. The majority of the victims have been brought with fractures at different RTAs sites. Fractures of the skull followed by those of the lower limbs were the commonest types and constituted about three quarter of all fractures. The trend in the types of fractures has remained almost the same during both 2021 and 2022. Table 2 shows a (132.2%) increase in the number of different types of cars registered in Thi_Qar in 2022 in comparison with that of 2021, with Lorries making the highest increase followed by private cars. Also, there has been (32.9%) increase in the total number of vehicles in Thi_Qar between 2021 and 2022. data from DDTP also revealed that high speed, bad quality roads and weather constituted 80.8%, 11.8% and 7.4% respectively of all causes of RTAs in 2021 in comparison with approximate rates of 76.1%, 16.3% and 6.8% for the year 2022.

Table 1. Distribution of RTAs casualties and death by sex in Thi_Qar in 2021_2022.

	2021	2022	P value
Male	242	292	0.063
Female	136	171	
Total	405	463	
Death	2021	2022	0.041
Male	77	132	
Female	9	11	
Total	86	143	

Table 2. Types of casualties among patients admitted to emergency hospital in Thi_Qar 2021-2022.

	2021 No. (%)	2022 No. (%)	
* Skull fracture	130 (32.1)	147 (31.7)	277 (31.9)
Lower limbs fractures	92 (22.7)	110 (23.8)	202 (23.3)
Upper limbs fractures	48 (11.9)	55 (11.9)	103 (11.9)
Spinal fractures	29 (7.2)	20 (4.3)	49 (5.6)
Combination soft tissue injury	29 (7.2)	32 (6.9)	61 (7.0)
Chest injuries	21 (5.2)	24 (5.2)	45 (5.2)
Multiple fractures	14 (3.5)	19 (4.1)	33 (3.8)
Abdominal injury	13 (3.2)	16 (3.5)	29 (3.3)

P value= 0.036...With or without head injury*

Table 3. Number and types of new cars registered in Thi_Qar between 2021 and 2022

Type of vehicles	2021 No. (%)	2022 No. (%)	increase %
Private cars	5236 (82.1)	11597 (78.3)	121.5
Taxi cars	437 (6.9)	752 (5.1)	72.1
Lorries	686 (10.8)	2426 (16.4)	254
Others	17 (0.3)	31 (0.2)	82.4
Total	6376 (100.0)	14806 (100.0)	132.2

P value= 0.028

4 | DISCUSSION

Study revealed an evident increase in cars and in RTAs in Thi_Qar in 2022 comparison with 2021. Increases occurred both in the total casualties and deaths from RTAs. Accordingly, one would anticipate that the increase in RTAs have actually started in 2021, thus making such differences even more significant. The DDTP has ranked high speed as the main cause of these accidents. This agrees with the expectation that these cars could achieve higher speed than already existing cars. Also, there has been no subsequent improvement in the quality of roads and/or traffic legislations. Several studies all over the world have linked RTAs with high speeds and ignoring traffic legislations. The study revealed that the casualties and deaths were clearly

higher in males than females. This is due to the low prevalence of female drivers. Also, accidents are more frequent among youth males driving together and specially while being under the effect of alcohol. Similar findings have been observed in Turkey and in other countries. Also, in Sulaimani governorate in Kurdistan region a study conducted on road traffic accidents and the male to female ratio among victims was 4:1. The study shows that most of the injuries were of severe types; where skull and lower limbs fractures constituted about two thirds of all casualties. Similar findings were also found in Sulaimani governorate. Lower limb injuries have also been the main cause of casualties in other studies. The high severity of cases admitted might indicate that only the most severe casualties are admitted to the hospital while mild cases might have escaped registration. This will result in under registration of RTAs. Similar results have also been observed in similar studies conducted in other countries.

5 | CONCLUSIONS

1. RTAs casualties and fatalities show increases during 2022 compared to that of 2021. The number of registered imported cars increased in parallel by (132.2%) during the same period
2. The most common types of casualties were skull fractures followed by lower limb fractures. Male preponderance was evident all through.
3. The commonest registered cause of RTAs was high speed followed by bad quality of roads and weather

Recommendation:

1. Provision of training programs for doctors and paramedics on sorting out and dealing with RTAs casualties.
2. Strict checking of imported cars before permission for use.
3. Improving road quality in parallel with the increasing number of imported cars.
4. Strict implication of traffic legislations and compliance with safety measures regulation.

5. Implementing proper educational programs making use of the different available mass media.
 6. The conduct of more extensive studies for delineation of proper preventive measures capable of decreasing RTAs casualties and deaths.
 7. Increasing the number of peripheral emergency treatment centers.
- Sydney: Williams and Wilkins 1987; p.p. 24-6

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