

A Retrospective Study on Patients with ENT Injuries Following Road Traffic Accidents at a Tertiary Care Medical Institution in Sri Lanka

Navodya C. Selvaratnam¹
Dr. Sinnadurai Selvaratnam²
A.M.N.A.D. Janani Sandunika Nanayakkara³
Prof. Dr. Samath D. Dharmaratne⁴
Dr. W. M. C. Narampanawa⁵

Abstract

Road traffic accidents (RTAs) and ear, nose, and throat (ENT) injuries are common causative factors of morbidity and mortality among children and adult populations. In developing countries, RTAs are the leading cause of ENT injuries and have a profound impact on the health and well-being of individuals. In Sri Lanka, there is a dearth of published research specifically on ENT injuries due to RTAs. This study was conducted to identify ENT injuries due to RTAs, their prevalence according to age and gender, and the clinical presentation among the patients managed in the National Hospital Kandy (NHK), Sri Lanka. All individuals with ENT injuries following an RTA admitted to the ENT Unit of NHK from January 2016 to March 2019 were included in the study. Patient data were collected from the Bed-Head-Tickets (BHTs) and analyzed. Among the 62 patients studied, 49 were male, while 13 were female. The majority (58%) of patients were among the 21–40-year age group. The nose was observed as the most common localized injury site (58%), followed by the ear (6%), while none had injuries to the throat. Epistaxis was the most commonly observed clinical presentation (69%). The majority of admissions occurred during '18:00-24:00' hours. Nine individuals were under the influence of alcohol. In the future, prospective studies in this area would help further understand ENT injuries due to RTAs.

Keywords: Road traffic accidents (RTAs), Ear, nose, and throat (ENT), Injuries

¹Navodya C. Selvaratnam, Research Assistant, Department of Community Medicine, Faculty of Medicine, University of Peradeniya, Sri Lanka

²Dr. Sinnadurai Selvaratnam, ENT Surgeon, National Hospital Kandy, Sri Lanka

³A.M.N.A.D. Janani Sandunika Nanayakkara, Research Assistant, Department of Community Medicine, Faculty of Medicine, University of Peradeniya, Sri Lanka

⁴Prof. Dr. Samath D. Dharmaratne, Chair Professor of Community Medicine and Consultant Community Physician, Department of Community Medicine, Faculty of Medicine, University of Peradeniya, Sri Lanka

⁵Dr. W.M.C. Narampanawa, ENT Surgeon, National Hospital Kandy, Sri Lanka

Introduction

Globally, road traffic accidents (RTAs) are one of the leading causes of disability and mortality, especially among individuals between 15 years and 30 years of age (García-Altés et al., 2013; Morgado et al., 2017). Among the global RTA fatalities, the region of South Asia accounts for 25% of the reported fatalities (World Bank, 2020). Besides, among the RTA injuries and deaths reported globally, more than 85% are reported from developing countries (Parkinson et al., 2014). RTAs are significantly important because the impact does not limit to the health and well-being of people but also on the health care system and the economy of the country (Morgado et al., 2017; Sarafraz et al., 2015).

In the developing world, RTAs are the leading causative factor of ear, nose, and throat (ENT) injuries (Gilyoma and Chalya, 2013). The underlying causes of ENT injuries, however, could vary. In clinical practice, the most prevalent causes include foreign body insertion, road traffic accidents, assaults, sports, and accidental falls (Adegbiyi et al., 2018; Gilyoma and Chalya, 2013). These injuries are of significant importance, primarily due to their profound impact on the health and wellbeing of individuals and the ability to comorbid with other injuries such as head and spinal cord injuries and injuries to extremities, leading to further complications (Adegbiyi et al., 2018; Bhatia and Tuli, 2017; Gilyoma and Chalya, 2013; Omran et al., 2019). Moreover, the impacts of ENT injuries can range from functional impacts such as interference in speech, swallowing, breathing, and loss of hearing to interference in daily chores and social interactions, cosmetic disfigurement, and subsequent adverse psychological impact (Bhatia and Tuli, 2017; Sarafraz et al., 2015; Omran et al., 2019). Besides, ENT injuries are a common causative factor of morbidity and mortality among children and adult populations (Matilda et al., 2012; Omran et al., 2019).

In Sri Lanka, which is a developing country in the region of South Asia, numerous studies have been conducted concerning injuries due to RTAs. However, there is a dearth of studies specifically on ENT injuries due to RTAs. Therefore, this study was conducted to identify ENT injuries due to RTAs, their prevalence according to the age and gender of patients, and the clinical presentation among the patients managed in the National Hospital Kandy (NHK), Sri Lanka. NHK is the largest tertiary care medical institution in the Central Province of Sri Lanka and the second largest in Sri Lanka.

Methodology

This retrospective descriptive study analyzed the Bed-Head-Tickets (BHTs) of patients with ENT injuries due to RTAs, managed in the ENT Unit of NHK from January 2016 to March 2019. The admission records of the male and female wards of the ENT Unit were obtained to identify the patients managed following an RTA during the study period. Once the patients were identified, BHT numbers of the patients were noted and subsequently, BHTs were requested from the records room of NHK. Data on the date and time of admission, age and gender of the patients, injury site, clinical presentation, and the influence of alcohol were obtained from the BHTs of the identified patients. Data was stored and managed using Microsoft Excel. For the ease of summarizing data, the age variable was categorized into four levels, ' ≤ 20 years', '21-40 years', '41-60 years', and '>60 years.' Similarly, the time of admission was also categorized into four levels as '00:00-06:00 hours', '06:00-12:00 hours', '12:00-18:00 hours', and '18:00-24:00 hours.' The site of injury was

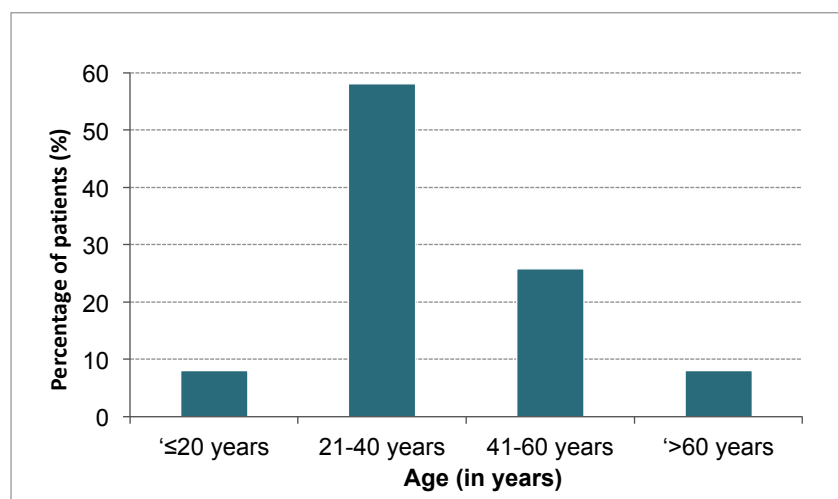
categorized as ‘Nose’, ‘Ear’, ‘Throat’, and ‘Other’. The ethics approval to conduct this study was obtained from the Ethics Review Committee of NHK.

Results

Over the period from January 2016 to March 2019, 62 patients with ENT injuries due to RTAs, were managed in the ENT Unit. Among the 62 patients, 49 individuals (79%) were male, while the remaining 13 individuals (21%) were female. The majority of the patients were in the age category ‘21-40 years’ (58%). Followed by the major age category, the ‘41-60 years’ age category included 26% of patients, while the ‘ ≤ 20 years’ and ‘ >60 years’ categories each included 8% of patients (Figure 1).

Figure 1

Age distribution of the patients managed with ENT injuries due to RTAs



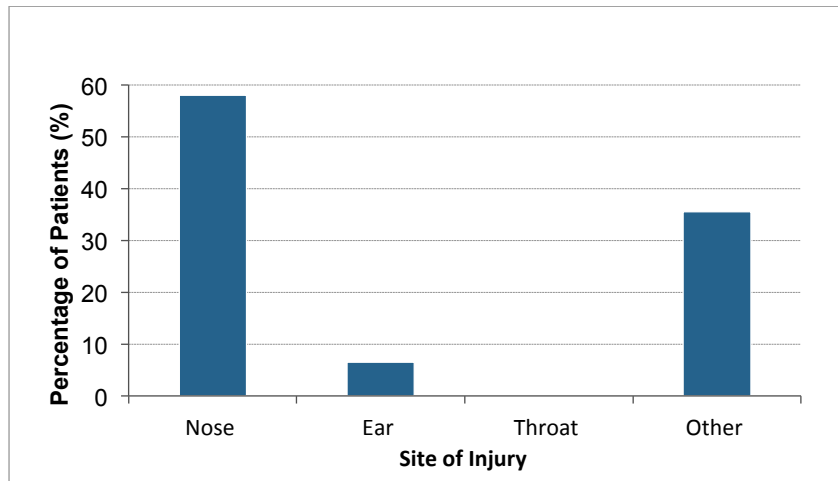
Concerning the site of injury, injuries of 58% of patients were localized to the nose, and of 6% of patients, the injuries were localized to the ear. Among the studied patients, injuries localized to the throat were not observed. However, in 35% of the patients, injuries were observed in more than one site. The observed combination sites include nose and ear and nose and throat. This study categorized injuries that were not localized to a single site as ‘Other’ (Figure 2).

The clinical presentation of a majority of patients (69%) included epistaxis or nasal bleeding. Ear bleeding was observed among 13% of patients, while throat bleeding was observed among 3% of patients. Some of the severe forms of clinical presentations recorded include nasal deformity, including nasal fracture, nasal septal hematoma, dysphagia, odynophagia, and hearing impairment. Besides, two patients were presented with hearing loss. Among the patients, one patient had vision problems, while a few patients had facial injury, including one patient with facial bone fracture. Furthermore, six patients had a head injury. Among them, two patients had a skull fracture, while two patients had a temporal bone fracture. One patient with skull fracture also had subdural hemorrhage, while cerebrospinal fluid (CSF) leakage was observed in the other patient. Among the patients

presented with temporal bone fracture, one patient also indicated lower motor neuron facial palsy, while the other patient had CSF leakage.

Figure 2

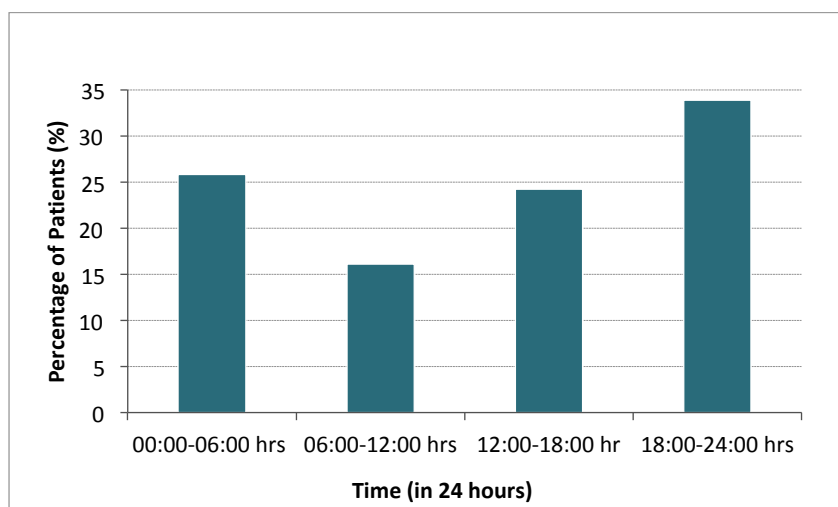
Percentage of patients managed based on the site of injury



The time of admission indicates that a majority of patients were admitted during the '18:00-24:00 hours' period (34%), followed by 26% during '00:00-06:00 hours,' 24% during '12:00-18:00 hours', and 16% of patients during '06:00-12:00 hours' period (Figure 3). Among the studied patients, nine were under the influence of alcohol at the time of the accident.

Figure 3

Percentage of patients managed based on the time of admission



Discussion and Conclusion

In the developing world, RTAs are the leading causative factor of ENT injuries (Gilyoma and Chalya, 2013), and these injuries are a common causative factor of morbidity and mortality among children and adult populations (Matilda et al., 2012; Omran et al., 2019). ENT injuries have a profound impact on the health and well-being of individuals and can occur with other injuries leading to further complications (Adegbiji et al., 2018; Bhatia and Tuli, 2017; Gilyoma and Chalya, 2013; Omran et al., 2019). However, these injuries tend to be overlooked, especially in developing countries (Matilda et al., 2012).

This study, which was conducted in the ENT Unit of NHK, identified 62 patients with ENT injuries due to RTAs during the study period. Among the 62 patients identified and studied, the majority were males. This observation is consistent with studies conducted in Sri Lanka and elsewhere (Gobyshanger et al., 2020; Matilda et al., 2012; Omran et al., 2019). However, these studies were not specifically conducted on patients with ENT injuries due to RTAs and rather on patients who sustained injuries due to RTAs and on patients with ENT injuries due to various causative factors. In our study, the age range of the majority of patients managed was from 21 to 60 years. This finding was also consistent with findings from two other studies conducted in Sri Lanka (Gobyshanger et al., 2020; Lakmal et al., 2021). However, these studies were not specifically conducted on patients with ENT injuries and rather on victims of RTAs.

Concerning the site of injury, the findings of our study indicate that the most common site of localized injuries among the patients was the nose, followed by the ear. No localized injuries were observed to the throat. Although not reported specifically on patients with ENT injuries due to RTAs alone, studies by Matilda et al. (2012) and Omran et al. (2019) indicate similar findings. Our study observed that the ENT injuries accompanied by patients following an RTA could be severe in nature and could comorbid with injuries to other sites such as the head. This highlights two key features. One is the profound impact ENT injuries could cause on individuals, while the other includes its ability to be comorbid with other injuries leading to further complications.

The findings of our study indicate that a majority of admission occurred during the '18:00-24:00 hours' period, followed by the '00:00-06:00 hours' period. The study by Mohtasham-Amiri et al. (2016) also reported somewhat similar results. However, in their study, the majority of the RTAs occurred at night, followed by evening. The analysis of patient records in our study further indicated that during the time of the accident, nine patients were under the influence of alcohol. The study by Lakmal et al. (2021) also observed that at least one individual among five individuals was under the influence of alcohol during the time of RTAs, however, the rate is higher in comparison to our study.

Concerning study limitations, this study may not include every patient managed in the ENT Unit following an RTA during the study period. This is because every admission was not recorded in sufficient detail to identify all the patients managed in the unit following RTAs. Furthermore, a few BHTs could not be obtained from the record room of the hospital. Therefore, the true prevalence of ENT injuries due to RTAs may be underrepresented in our study.

Therefore, we recommend conducting studies that are prospective in nature in the future to further understand ENT injuries following RTAs, including their clinical

presentation and patient demographics. These prospective studies can also include other factors in their analysis, such as the severity of ENT injuries and which type of road user the patient was. Finally, we believe our study would provide the foundation for recognizing the importance of studying ENT injuries due to RTAs in the future.

Acknowledgement

The authors of this study are grateful to the medical staff of the ENT Unit, the inpatient ward medical staff of the Department of Surgery, and the staff of the records room of NHK for providing assistance in conducting this study.

References

- Adegbiji, W. A., Olajide, T. G., Olajuyin, O. A., Olatoke, F., & Nwawolo, C. C. (2018). Pattern of presentation of ear, nose, throat, head and neck injury in a developing country. *Research Journal of Health Sciences*, 6(1). <http://dx.doi.org/10.4314/rejhs.v6i1.2>
- Bhatia, A. & Tuli, I. P. (2017). Analysis of ear, nose and throat injuries reporting to a tertiary care hospital in Sikkim. *Al Ameen Journal of Medical Sciences*, 10(2), 100-106.
- Gilyoma, J. M., & Chalya, P. L. (2013). Ear, nose and throat injuries at Bugando Medical Centre in northwestern Tanzania: A five-year prospective review of 456 cases. *BMC Ear, Nose and Throat Disorders*, 13(4). <https://doi.org/10.1186/1472-6815-13-4>
- García-Altés, A., Suelves, J. M., & Barbería, E. (2013). Cost savings associated with 10 years of road safety policies in Catalonia, Spain. *Bulletin of the World Health Organization*, 91(1), 28–35. <https://doi.org/10.2471/BLT.12.110072>
- Gobyshanger, T., Bales, A. M., Hardman, C., & McCarthy, M. (2020). Establishment of a road traffic trauma registry for northern Sri Lanka. *BMJ Global Health*, 5, e001818. <https://doi.org/10.1136/bmjgh-2019-001818>
- Lakmal, M., Ekanayake, E., Kelum, S., Gamage, B. D., & Jayasundara, J. (2021). Hospital-based case series analysis of road traffic trauma patients in Sri Lanka. *The Indian Journal of Surgery*, 83(Suppl 1), 120–125. <https://doi.org/10.1007/s12262-020-02473-8>
- Matilda, I., Lucky, O., & Chibuike, N. (2012). Ear, nose and throat injuries in a tertiary institution in Niger Delta region Nigeria. *Journal of Medical Research and Practice*, 1(3), 59-63.
- Mohtasham-Amiri, Z., Dastgiri, S., Davoudi-Kiakalyeh, A., Imani, A., & Mollarahimi, K. (2016). An epidemiological study of road traffic accidents in Guilan province, Northern Iran in 2012. *Bulletin of Emergency and Trauma*, 4(4), 230–235.
- Morgado, M. A., Jalles, F., Lobo, S., Abecasis F., & Gonçalves, M. (2017) Road traffic injuries and road safety measures-can we do any better? *Pediatrics & Therapeutics*,

7(2): 319. doi:10.4172/2161-0665.1000319

Omran, G. A., Ragaey, M. A., & El Shehaby, D. M. (2019). Medico-legal aspects of otorhinolaryngeal, face and neck injuries in upper Egypt: A prospective analysis and retrospective evaluation of claimed disabilities. *Egyptian Journal of Forensic Sciences and Applied Toxicology*, 19(3), 103-120.

doi:10.21608/ejfsat.2019.14358.1082

Parkinson, F., Kent, S. J., Aldous, C., Oosthuizen, G., & Clarke, D. (2014). The hospital cost of road traffic accidents at a South African regional trauma centre: A micro-costing study. *Injury*, 45(1), 342–345. <https://doi.org/10.1016/j.injury.2013.04.007>

Sarafraz, Z., Mirshamsi, M. H., Musavi, S. A., & Azaraein, M. H. (2015). Assessing the ignored associated injuries of the ear, nose and throat in patients with multiple trauma in Shahid Rahnamun hospital of Yazd in 2012 and 2013. *Electronic Physician*, 7(3), 1121-1125. doi:10.14661/2015.1121-1125

World Bank. (2020). *Road Safety in South Asia. Opportunities for Shared Regional Initiatives*. <https://openknowledge.worldbank.org/handle/10986/33337>

© The Author(s). 2022. The following article is published and licensed under the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>). Under this license, anyone may access, copy, distribute, or reuse this article if the author(s) and the original source are properly cited.

Suggested reference:

Selvaratnam. N. C., Selvaratnam. S., Nanayakkara. A. M. N. A. D. J. S., Dharmaratne, S. D., Narampanawa, W. M. C. (2022). A Retrospective Study on Patients with ENT Injuries Following Road Traffic Accidents at a Tertiary Care Medical Institution in Sri Lanka, *Eagan Journal of Contemporary Research*, 1(1), 67 - 73.