Oral and Maxillofacial Patients in Intensive Care Unit: A Perspective Analysis of Patients Admitted Over Three Years

Dr. Subhash Prasad Acharya,[1] Dr. Sudeep Acharya[2]

[1]Department of Anesthesiology, Institute of Medicine, Tribhuvan University, Kathmandu, Nepal;

[2]Department of Oral and Maxillofacial Surgery, KIST Medical College, Lalitpur, Nepal

Correspondence:

Dr. Subhash Prasad Acharya. Email: drsuvash@gmail.com

ABSTRACT

Introduction: Oral and maxillofacial surgery has developed into a separate specialty and there are very few of such patients admitted to ICU. The objective of this study was to analyse the oral and maxillofacial surgery patients admitted to ICU and their outcome in a tertiary ICU in Nepal.

Materials and Method: A cross-sectional study was designed and all oral and maxillofacial patients admitted to the ICU at our center between 2072 Baisakh 1st to 2074 Chaitra 30th (2015 April 14th to April 2018 April 13th) were enrolled for this study and analysed.

Result: A total of 2356 patients were admitted in ICU over a period of three years out of which there were only 15 patients with oral and maxillofacial related admission. Most of them were cases of Trauma (5, 33.33%) Cancer (5, 33.33%), Infections (4, 26.66%) and Firearm injury (1, 6.66%). Most of them were associated with other trauma (6, 37%) while 5 (31%) were in ICU after postoperative reconstruction surgeries for cancer, 3 (19%) of them came after drainage and debridement of Abscess/ infection in oral and maxillofacial region and one patient (13%) presented with septic shock. Nine (60%) of the 15 patients required mechanical ventilation and out of these only one patient (6.66%) with cancer expired and 14 of them survived out of ICU.

Conclusion: Even though the number of trauma patients and postoperative reconstructive surgery are increasing, very few of these patients need ICU admission and the overall outcome is good. Thus the need for early ICU admission is advised in these patients.

Keywords: Intensive care unit; maxillofacial surgery; oral surgery; outcome.

INTRODUCTION

Intensive Care Unit (ICU) admits most critically ill patients in hospital but the need for ICU admissions for oral and maxillofacial surgical (OMFS) patients are less. Such ICU admissions are commonly for Trauma, postoperative management of major surgeries requiring intense monitoring for airway management, fluid and electrolyte balance and postoperative care.[1]

Such patients with oral and maxillofacial (OMF) lesions may require ICU admissions also for malignancies of that region requiring major surgeries or commonly because of infectious lesion requiring debridement or drainage or with a threat to compromise airway like in patients with Ludwig's angina, Submandibular abscess, retropharyngeal abscess, etc. Sometimes these patients when delayed also present with septic shock. [2]

This study will discuss the patients with OMF lesions that were admitted to an eleven-bedded level III ICU at Tribhuvan University Teaching Hospital (TUTH ICU). This TUTH ICU is a mixed medical-surgical semi-closed ICU managed by Department of Anesthesiology that admits all critical patients including OMFS patients. There is no published data from Nepal regarding types and outcomes of OMFS patients in ICU. Thus this study was conducted with an objective to analyse the perspective of OMFS patients admitted in ICU.

MATERIALS AND METHOD

A cross-sectional study was designed and conducted and all patients with OMF problems admitted in the ICU over a period of three years between 2072 Baisakh 1st to 2074 Chaitra 30th (2015 April 14th to April 2018 April 13th) were enrolled for this study and analysed.

The data was obtained by review of ICU admission discharge book and electronic medical records and patient charts. The variables studied were age, sex, diagnosis, pre-or postoperative status; length of stay in ICU length of stay in mechanical ventilation, outcome (survivor, non-survivor, those leaving against medical advice) and readmission to ICU. The data were entered in Microsoft Excel and analysed using SPSS version 17.0.

RESULT

A total of 2356 patients were admitted in ICU over a period of three years out of which there were only 15 patients with OMF related admission. Amongst them, there were nine (60%) males and six females (40%). All of them were within the age group of 18-65 years and most of them were cases of Trauma (5, 33.33%) Cancer (5, 33.33%), Infections (4, 26.66%) and Firearm injury (1,6.66%).

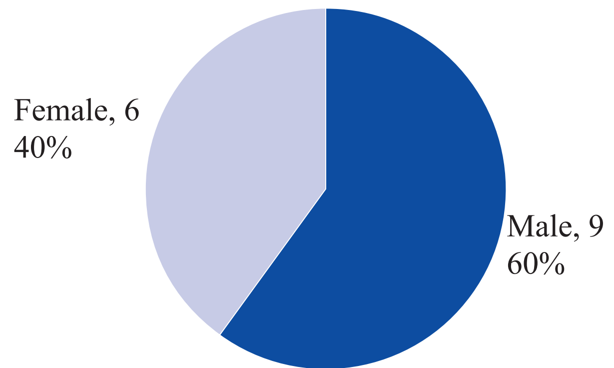

Figure 1: Age distribution.

Most of them were associated with other trauma (6, 37%) while 5 (31%) were in ICU after post operative reconstruction surgeries for cancer, three (19%) of them came after drainage and debridement of Abscess/infection in OMF region and one patient (13%) presented with septic shock.

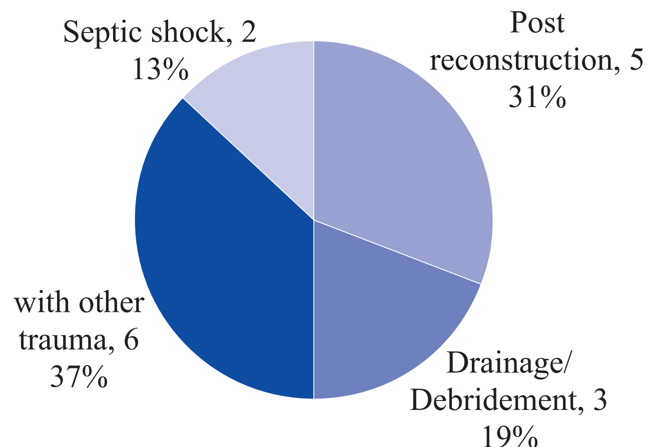

Figure 2: Indication of ICU Admission

Nine (60%) of the 15 patients required mechanical ventilation and out of these only one patient (6.66%) with cancer expired and 14 of them survived out of ICU. Average length of stay in Mechanical ventilation in these patients was 3.5 days while average length of stay in ICU in these patients was 5.2 days.

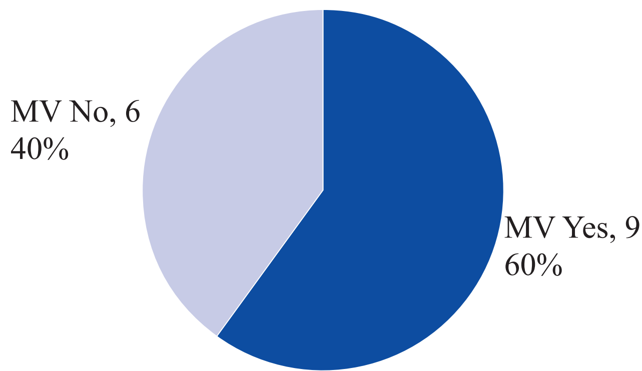

Figure 3: Requirement of Mechanical Ventilation (MV).

Considering outcome, only one patient (6.66%) out of the 15 expired and 14 of them survived and were shifted to step down unit. The one patient that expired had cancer of buccal mucosa with neck nodes and emergency tracheostomy was done and brought to ICU for immediate management for airway compromise. He then worsened and later expired with hospital acquired pneumonia and refractory septic shock with multiorgan failure.

DISCUSSION

Maxillofacial injuries pose therapeutic challenges to trauma, maxillofacial and plastic surgeons practicing in developing countries. Oral and maxillofacial surgery patients are complex in nature and are admitted in ICU for the management of upper airway most of the time. Oral and maxillofacial lesions require a team approach for the management involving OMF Surgeons, ENT surgeons, Plastic surgeons and a team of Critical Care for their management in ICU. Airway management presents a special challenge to anesthesiologists and critical care physicians for patients with OMF lesions.[1]

The need for ICU admission for Oral and maxillofacial surgery patients is based on their assessment in the perioperative, post-injury, or other acute care settings. Usually patients with anatomical concerns, postoperative challenges related to airway management or any combination of concomitant trauma including head and spine injury, other pathology, or pre-existing respiratory failure. Thus, to manage all this, ICU should be equipped with advanced adjuvants to airway management, experienced physicians to manage these nonsurgical needs.[2]

In Nepal, there are many studies about OMF lesions but there are no data about ICU patients with OMF lesions.3 In the study, all of the patients were between 18 -65 years of age and out of them, all the trauma patients were from 20-50 years of age. This is also similar to study by Yadav et al.[2] The most common cause of OMF lesions are trauma that happens along in association with other trauma. Road traffic crashes or motor vehicle accidents remain the major etiological factor of maxillofacial injuries in our setting. This is also similar to Nepal and other developing countries.[3,4]

Mathew et al5 has advised for the routine use of a high dependency care for initial 48 hours followed by shifting the patient to a maxillofacial head and neck general ward for post-operative maxillofacial oncology patients. This practice has helped in offering high quality, cost effective and efficient services without having any adverse effect on the quality of care. In their study, only 6% of these patients required ICU admission. Despite the high number of patients with OMFS, the incidence of procedural complications is very low.[5]

The duration of stay in the ICU stay in our patients varied and was around 5.2 days in average but and the length of ICU stay was not associated with morbidity or mortality. In a study by Jarab et al,[6] almost two-thirds (64%) did not require staying in the ICU and were transferred to the general ward on the same day that the procedure was performed and also the length of ICU stay directly increased the length of hospital stay.

Almost 60 % of our patients in ICU required mechanical ventilation, which is similar to another study by Chalya et al[3] where 68.8% required ventilator support. In their study tracheostomy was needed in 19 (30.16%) patients whereas only one of our patient required tracheostomy and 66.67% patients were operated for head injuries.[6] Other studies also report similar incidences of requirement of mechanical ventilation in these patients.[6, 7]

Another study from Nigeria also mentioned that facial space infections and orofacial malignancies contribute largely to mortality and presentation was a major factor predisposing to mortality.[8]

Since this study is a cross-sectional study and has very less sample size and is from one center only, there are limitations but this study presents the very few cases of OMFS patients in ICU about which we did not have any previous data.

CONCLUSION

Though there are increasing number of trauma patients and postoperative reconstructive surgery, only few of these patients need ICU and their overall outcome is good. But because of compromised airway that requires monitoring, early ICU admission is advised for these patients.

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Conflict of Interest: None

REFERENCES

1. Barak M, Bahaouth H, Leiser Y, El-Naaj IA. Airway Management of the Patient with Maxillofacial Trauma: Review of the Literature and Suggested Clinical Approach. BioMed Res Int. 2015;2015:724032.
2. Mc Neish J, Shapiro DS. ICU Management of the Maxillofacial Surgery Patient. In: Ferneini E., Bennett J. (eds) Perioperative Assessment of the Maxillofacial Surgery Patient. Springer, Cham. (2018)
3. Yadav SK, Mandal BK, Karn A, Sah AK. Maxillofacial trauma with head injuries at a tertiary care hospital in Chitwan, Nepal: clinical, medico-legal, and critical care concerns. Turk J Med Sci 2012;42 (1):1-8
4. Chalya PL, Mchembe M, Mabula JB, Kanumba ES, Gilyoma JM. Etiological spectrum, injury characteristics and treatment outcome of maxillofacial injuries in a Tanzanian teaching hospital. J Trauma Manag Outcomes. 2011 Jun 2;5(1):7.
5. Mathew SA, Senthilnathan P, Narayanan V. Management of post-operative maxillofacial oncology patients without the routine use of an intensive care unit. J Maxillofac Oral Surg. 2010 Dec; 9(4):329-33.
6. Jarab F, Omar E, Bhayat A, Mansuri S, Ahmed S. duration of hospital stay following orthognathic surgery at the jordan university hospital. J Maxillofac. Oral Surg. 2012 Sep; 11(3):314-8.
7. Bajwa SJ, Kaur J, Singh A, Kapoor V, Bindra GS, Ghai GS. Clinical and critical care concerns of cranio-facial trauma: A retrospective study in a tertiary care institute. Natl J Maxillofac Surg. 2012 Jul;3(2):133-8.
8. Omejea KU, Amolea IO, Osundeb OD, Efunkoyaa AA, Atandac AT. Causes of maxillofacial patients mortality in a Nigerian tertiary hospital. South Sudan Med J. 2016:9(1);4-7.