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MAXILLOFACIAL SURGEON AND GOLDEN HOUR OF TRAUMA- RELEVANCE, IMPORTANCE AND DUTIES- A REVIEW

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ABSTRACT

Knowledge and skills of a maxillofacial surgeon are tested when it comes to managing head and neck trauma during the 'golden hour'. The role of a maxillofacial surgeon is not well developed and poorly established in developing countries. Participation of maxillofacial surgeon in the emergency trauma team to manage and treat a patient during golden hour is essential to provide a complete interdisciplinary health care. The role of maxillofacial surgeon during golden hour should not be overlooked as the diagnosis and the treatment during a polytrauma requires head and neck expertise.

***Aim:** The purpose of this review article is to create an understanding for the role and importance of a maxillofacial surgeon on the emergency trauma team to provide efficient treatment.*

***Materials and methods:** An electronic and manual search on Pubmed, Google Scholar and other databases was performed by authors. Studies and articles related to 'Golden Hour', 'Trauma', 'Emergency trauma team', and 'Faciomaxillary surgeon' were included. Studies not including the above criteria were excluded from the search.*

***Results:** Maxillofacial surgery is a specialist branch of dentistry with deep roots in medicine and extremely detailed knowledge of head and neck related anatomy and surgery. The presence of a maxillofacial surgeon in an emergency trauma team is essential as it helps in providing excellent craniomaxillofacial diagnosis, treatment and care during golden hour in polytrauma cases.*

***KEYWORDS:** Craniomaxillofacial trauma, Golden hour, Diagnosis, Maxillofacial surgeon, Head and neck surgery.*

INTRODUCTION

'Golden Hour' refers to the first 60 minutes from the time of injury to receiving definitive care after which the morbidity and mortality increases significantly¹. This term is believed to have been coined by R. Adans Cowley, founder of Baltimore Shock Trauma Institute in 1975. He stated that "the first hour after injury will largely determine a critically- injured patient's chances of survival"²⁻⁶.

Trauma is a multisystem disease which requires immediate assessment, diagnosis and treatment⁷. A team of professionals from various multidisciplinary fields helps in creating of coordinated protocols that help in combined work, arranged and logical approach to the patient with multiple severe injuries⁸⁻¹⁰. In such patients, the attention is diverted towards the general status of the patient, increasing survival and to prevent any complications. It is very important to understand the clinical priorities to increase the effectiveness of treatment but the role of a maxillofacial surgeon cannot be ignored¹¹. Complex maxillofacial trauma requires a team of neurosurgeons, maxillofacial surgeon, anaesthesiologist, otorhinolaryngologist and an ophthalmologist who work in close cooperation and aim at providing excellent patient care in the golden hour of surgery¹²⁻¹⁴.

Principles of Trauma Care²:

- ABCDEs of assessment (Airway maintenance with cervical spine protection, Breathing with ventilation, Circulation with haemorrhage control, Disability; neurological status and exposure/ environment).
- 'Primum non-nocere' (Do no harm).
- Treatment of life threatening injuries within the 'golden hour'.

Role of Maxillofacial surgeon at emergency centre^{2, 15-17}:

Maxillofacial surgery aims for early and total repair of facial injuries which enhance the functional and aesthetic outcomes of patients with craniofacial trauma and makes it possible for patient to return to the pre-injury state as early as possible. Be it a simple wound debridement, comprehensive care and haemostasis or a major trauma requiring variety of treatments; the role of an Oral and Maxillofacial surgeon cannot be neglected.

The role of an Oral and Maxillofacial surgeon for a trauma patient during from the 'Golden Hour' can be categorised into Primary and Definitive treatment.

Primary management^{2, 11, 15}:

- Assessment of respiratory pathways as per ALTS- perform resuscitation if necessary.
- Hemostasis from any maxillofacial injury to prevent hypovolemia.
- Evaluate GCS and assess cranial nerves.
- Temporary immobilization.
- Dental models can be recorded to determine patient's occlusion and may help in preparation of splints (if possible).

Definitive treatment^{7, 11, 15, 18}:

- Conservative management till other life threatening complications are taken care of.
- Open reduction and rigid internal fixation for dentoalveolar, lefort, mandibular, combined maxillofacial injuries.

DISCUSSION

There are limitations as a maxillofacial surgeon when it comes to the evaluation and treatment in the Golden Hour. Definitive repair depends on a number of factors related to the patient's overall status which determine the prognosis of the treatment¹⁹.

Most commonly fractured or injured site in maxillofacial trauma is the mandible. The management of maxilla-mandibular fractures in 'golden hour' includes preliminary treatment like wound debridement, stabilization and prevention of severe life threatening complications². Management of a craniomaxillofacial injury requires expertise of a trained professional like a maxillofacial surgeon who has skills of specific instrument handling and performing surgeries which if not treated in stipulated time may lead to irreversible damage, wound infection or disability.

Currently, there are various theories and evidence based studies on management of craniomaxillofacial trauma in the golden hour which has gathered controversies¹⁸. The efficient handling of craniomaxillofacial injuries requires thorough knowledge of head and neck anatomy. Oral and maxillofacial surgeon is an expert with detailed skill and knowledge in head and neck surgeries¹⁵.

In a developing country like India, the role of a maxillofacial surgeon is not well established when it comes to treating trauma patients during the golden hour. The educational curriculum and the practice setup lack a detailed training in the management of head and neck trauma during the golden hour²⁰.

CONCLUSION

This article is an attempt to develop regards towards maxillofacial surgery and emphasize the importance of a maxillofacial surgeon in trauma during the golden hour. A multidisciplinary approach should be applied in the assessment, diagnosis and treatment of craniomaxillofacial trauma so that no injury should be overlooked and omitted. Consultations and treatment plan discussions with speciality surgeons should be performed to ensure high quality treatment with minimal complications and risks.

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