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Research Article

### TRACHEOSTOMY: A LIFE SAVING PROCEDURE IN PATIENTS WITH SEVERE HEAD INJURY

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**Abstract:**

**Background:** Tracheostomy is making an opening into anterior wall of trachea. It is a lifesaving procedure when performed in time in patients with severe head injury. It reduces obstruction to airway improves oxygenation by reducing dead space and facilitates toileting thereby contributing a lot in the management protocol of patient who sustain severe head injury.

**METHODOLOGY:** It is prospective observational study 17 cases with severe head injury admitted in Neurosurgery ICU of DHQ Hospital Mirpur AJK who underwent emergency tracheostomy between March 2017 and May 2017. Patients were assessed by Neurosurgeons for the need of tracheostomy and those with Glasgow coma scale (GCS) less than 8 having multiple maxillofacial injuries were included in this study. Patients with GCS more than 11 having no air hunger or facial injury were not included. All operations were performed as emergency procedures after taking informed surgical consent under local anesthesia. Postoperative nursing care was given to the patients and they were followed up.

**Results :** Out of 17 patients, 15(88% ) were male and 2(11.7%) were female with age range from 12 years to 42 years having mean age of 27, 14(82%) cases had Road Traffic Accident, 2 (11.7%) had History of fall and only 1(5.8%) cases had gunshot injury. 15(88%) had got their CT scan done preoperatively whereas remaining 2(11.7%) were scanned after the procedure and initial resuscitation . 14(82.3%) patients showed improvement and did well while 1 patient expired. Average stay in ICU 8 days.

**Conclusion:** Tracheostomy is very useful procedure in severe head injury cases for better ventilation. Tracheostomy is mandatory in road traffic accident patients with severe head injury as in RTA there are also fractures of maxillofacial bones leading compromised air entry.

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**INTRODUCTION:**

Tracheostomy is making an opening in the anterior wall of the trachea and then converting it into a stoma (1). The procedure known for about 3500 years is derived from Greek word meaning to cut the throat (2). This is one of the most routinely performed procedure in ICU patients (3). Its indications include upper airway obstruction, suctioning of secretions, protection from aspiration and access to ventilator (4). The time available for deciding on and then performing tracheostomy in order to secure airway under a particular set of circumstances is often short time because patient's condition can deteriorate quickly (5).

**MATERIAL AND METHODS:**

This is prospective descriptive study which is carried out in Neurosurgical Department of DHQ Hospital Mirpur AJK. Duration of this was from March 2017

to May 2017. Total sample size is 17. All patients were assessed, those having GCS 8 or below 8 with airway compromised and having maxillofacial injury underwent emergency tracheostomy while those having GCS 11 or above this with no airway compromise and having moderate head injury were excluded.

Initially all patients were managed with ATLS protocol. Before tracheostomy, brief history, general physical examination with local examination was performed. In majority of the patients CT SCAN was performed before shifting the patient to ICU while in other cases CT SCAN was performed after the procedure. In all the cases written informed surgical consent was obtained from close relatives. Procedure was performed by conventional open surgical technique. Post operative nursing care was performed.

**RESULTS:****Sex Incidence**

There were 15 (88%) male and 2 (11.7%) female patients.

No. of Patients	Male	Female
17	15 (88%)	2 (11.7%)

**Age Range:**

Patients' age ranged from 12 years to 42 years with average age of 27 years.

**Mode Of Trauma :**

Out of 17 cases 14 (82%) cases had Road Traffic Accident, 2 (11.7%) had History of fall while only 1 (5.8%) cases had Gunshot injury.

No. of Patients	Cases
14 (82%)	RTA
2 (11.7%)	History of fall
1 (5.8%)	Gunshot injury

15 (88%) had got their CT scan done preoperatively whereas remaining 2 (11.7%) were scanned after the procedure and initial resuscitation. Patients were observed carefully, gradually struggle for air hunger and GCS improved. In all the cases tracheostomy tube was removed during follow up. The average stay of these patients in hospital ICU was 8 days.

**Outcome:**

One (5.8%) patient expired due to severe head injury within 12 hour of procedure. 14 (82.3%) patients fully recovered while 2 (11.7%) having static GCS due to Brain Matter damage and presented in OPD due to repeatedly chest infection.

No. of patients	Excellent	Poor	Expiry
17	14 (82.3%)	2 (11.7%)	1 (5.8%)

**DISCUSSION:**

Tracheostomy plays a vital role in the management and outcome of patients with severe head injury. It provides early airway protection and decrease the chance of prolonged ventilator support (6). Moreover it also decreases dead space by improving oxygen supply to brain and decreases brain oedema. Tracheostomy tube facilitates pulmonary toilet, oral

hygiene and most importantly ventilator associated pneumonia (7).

In the study by Sugerman several major trauma centers refused to participate in early tracheostomy because in their study they found that head injury patients who underwent early tracheostomy had high

APACHE Score but there is no difference in pneumonia and death rate as compared to patients with late tracheostomy(8).

Lesnik et al retrospectively study showed that duration of ventilator support was 6 days in early tracheostomy while 20 days in late tracheostomy group(9). Welzet et al(1998) and Teo et al (2000) reported 0.6% mortality in their study. Among local literature, Manzoor et al(2000) reported 26% complication rate(10).

### CONCLUSION:

Tracheostomy is very useful procedure in severe head injury patients for better ventilation. Complications of tracheostomy are less however team work between maxillofacial surgeon, Neurosurgeon and trauma experts in which each expert contribute their knowledge for better outcomes.

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