

# TRACHEOSTOMY IN BRAIN INJURED PATIENTS: A SINGLE CENTER RETROSPECTIVE STUDY ON 150 CONSECUTIVE PATIENTS

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## Introduction

Tracheostomy is standard of care for severe brain injured patients.

## Objectives

To describe the approach and the systemic effects of tracheostomy in severe brain injured patients in a neurocritical intensive care unit (San Gerardo Hospital, Monza, Italy).

## Materials and methods

All consecutive adult patients undergone tracheostomies from 2010 to 2013 were included. A retrospective analysis of prospectively-collected data retrieved from a digital PDM system was performed (demographics, procedures characteristics, and blood gas analyses, intracranial pressure (ICP), mean arterial pressure (MAP), cerebral perfusion pressure (CPP)). Data are reported as median (interquartile range) prior to/during/after tracheostomy. A repeated measures analysis of variance was utilized to assess the effects of tracheostomy.

## Results

150 patients (56% male, 67 (56-73) years old, GCS at admission 7 (6-9)) admitted for intracranial hemorrhage (29%), subarachnoid hemorrhage (23%), trauma (21%), stroke (9%) were included. Tracheostomy was performed at 10 (7-13) days from admission mostly (88%) for compromised neurological status (GCS at tracheostomy 7 (6-9)). Direct laryngoscopy Fantoni's translaryngeal technique (TLT), Percutwist, surgical, standard TLT and Dolphin were used in 64%, 14%, 13%, 7% and 2% of the cases. ENT specialists and intensivists performed 53% and 47% of the tracheostomy. No deleterious effect on clinical parameters was detected (see Table 1). Four lesions of the tracheal rings were documented.

## Conclusion

In a large cohort of brain-injured patients tracheostomy performed one week after the initial insult was safe.

	Baseline (4 hours prior to tracheostomy)	Tracheostomy (worse measurement during tracheostomy)	After (8 hours after tracheostomy)
ICP (mmHg)	8 (4 - 11)*	14 (7.5 - 18)	9 (6 - 11)*
MAP (mmHg)	82 (71.5 - 93)	85 (71 - 99.5)	79 (68 - 88)*
CPP (mmHg)	77 (63 - 87)	77.5 (64 - 91.75)	73 (64 - 81)
PaO <sub>2</sub> /FiO <sub>2</sub> (mmHg)	351 (300 - 396)	-	354 (298 - 423)°
pH	7.43 (7.41 - 7.45)	-	7.43 (7.41 - 7.45)
PaCO <sub>2</sub> (mmHg)	42 (39 - 45)	-	41 (38 - 44)°

ICP, intracranial pressure; MAP, mean arterial pressure; CPP, cerebral perfusion pressure; PaO<sub>2</sub>, arterial PO<sub>2</sub>; FiO<sub>2</sub>, inspired fraction of oxygen; PaCO<sub>2</sub>, arterial PCO<sub>2</sub>. \*) p < 0.001 vs. Tracheostomy, °) p < 0.05 vs. Baseline.