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A comparison of percutaneous tracheostomy and of surgical tracheostomy in patients in the Neurosurgical ICU at Charlotte Maxeke Johannesburg Academic Hospital

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Abstract

Introduction

A tracheostomy is a surgically created opening in the anterior wall of the trachea through which a tube can be inserted. Egyptian hieroglyphic paintings that depict a tracheostomy procedure can be dated back to 3100 BC.[1] Tracheostomy is a procedure that is commonly performed on Intensive Care Unit (ICU) patients and, with an increasing need for intensive care services, the number of patient referrals for tracheostomy will likely increase as well.

Aim

The purpose of this study was to compare various clinical characteristics of patients who received either a percutaneous tracheostomy (PT) or a surgical tracheostomy (ST) during their stay in the Neurosurgical Intensive Care Unit (NSICU) at Charlotte Maxeke Johannesburg Academic Hospital (CMJAH).

Method

A retrospective study of the records of all patients who underwent a tracheostomy procedure during their stay in NSICU at CMJAH between 1st January 2017 and 31st December 2020 was undertaken. Clinical information collected for all patients included age, gender, Glasgow Coma Score (GCS), Simplified Acute Physiology Score (SAPS II), duration of stay in NSICU before and after tracheostomy, duration of mechanical ventilation pre- and post-tracheostomy and in-NSICU actual mortality. Predicted mortality percentage for each patient was calculated from SAPS II. A Glasgow Outcome Score (GOS) was assigned to each patient on discharge from NSICU. Patients were allocated to one of two groups. Those who received PT were allocated to GroupPT while those who received ST were allocated to GroupST. The percentage case fatality risk for each tracheostomy group was calculated.

Results

Of the 66 patients who underwent a tracheostomy procedure during the study period, 19 patients (28.8%) fell into GroupPT. The remaining 47 patients (71.2%) fell into GroupST. The median age of GroupPT was 28 years with lower and upper inter-quartile range (IQR) of 25 and 32 years, respectively. The median age of GroupST

was 40 years (IQR 31, 54). This difference was statistically significant ($p < 0.05$). The median SAPS II score for Group PT was 41 (IQR 29, 47) and that of Group ST was 44 (IQR 30, 50). This difference was not significant. There were no differences in GCS, duration of stay in NSICU, number of days of mechanical ventilation pre- or post-tracheostomy procedure, actual mortality or GOS between the two groups.

Conclusion

In this group of 66 patients ST was the commoner of the two procedures performed. Even so, the findings of this study suggest that PT is a suitable procedure that may be performed safely on patients in the NSICU.