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Patients with tracheostomy indication in an intensive care cohort[☆]

María Esther Martínez-Barrio^{*}, Ana Berrazueta-S. de Vega,
Javier Romero-Pellejero, José Antonio Fernández-Ratero, María del Valle-Ortiz,
Diana Armesto-Formoso

Intensive Care Unite, Burgos University Hospital, Burgos, Spain

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ABSTRACT

Introduction: Tracheostomy is a procedure indicated for patients with extended mechanical ventilation.

Objective: The objective of the study was to learn about the technical characteristics, the appropriate timing for the procedure and its evolution.

Material and method: Observational, retrospective study of ICU admitted patients during 2012, with elective tracheostomy. The demographic variables, the Apache II, the pathologies, the number of days in MV, length of stay and mortality were analyzed, both globally and by groups, depending on the early or late use of the technique. The study was approved by the Ethics Committee for Clinical Research of the institution, in accordance with the institutional bioethical principles.

Results: The mean age in the sample with 42 patients was 61.36, and the mean Apache II was 18. The most frequent pathology was neurological. The approach was percutaneous in 71.5%, with minor complications in 20% of the cases. In the early tracheostomy group, the number of days in MV and the length of stay were both considerably shorter.

Conclusions: Elective tracheostomy is a commonly used technique in the ICU and the procedure is performed according to the protocol. The percutaneous approach is the most frequently used, with few complications. In neurological critical patients with extended weaning, an early approach reduces the number of days with ventilation and the length of stay, with no positive impact on mortality.

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^{*} Corresponding author at: Hospital Universitario de Burgos, Avenida Islas Baleares, 3, 09006 Burgos, Spain.

E-mail address: esmaba12@yahoo.es (M.E. Martínez-Barrio).

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Pacientes con indicación de traqueostomía en una cohorte de cuidados intensivos

RESUMEN

Palabras clave:

Traqueostomía
Cuidados críticos
Respiración artificial
Manejo de la vía aérea
Unidades de cuidados intensivos

Introducción: La traqueostomía es un procedimiento indicado en los pacientes con ventilación mecánica prolongada.

Objetivo: El objetivo del estudio fue conocer sus características, técnica, momento adecuado de realización y evolución.

Material y método: Estudio observacional retrospectivo, de pacientes ingresados en UCI durante 2012, con traqueostomía electiva. Se analizaron variables demográficas, escala Apache II, patologías, días de VM, estancia y mortalidad; de forma global, y por grupos según técnica precoz o tardía. El estudio fue aprobado por el Comité Ético de Investigación Clínica del centro, cumpliendo con los principios bioéticos del mismo.

Resultados: En la muestra de 42 pacientes la edad media fue 61.36, con mediana de Apache II de 18. La patología más frecuente fueron los pacientes neurológicos, se realizó la forma percutánea en el 71.5%, con complicaciones menores del 20%. En el grupo de traqueostomía precoz se observó menor número de días de VM y estancia de forma significativa.

Conclusiones: La traqueostomía electiva es una técnica frecuente en UCI, realizado el procedimiento según protocolo; la modalidad percutánea es la más empleada, con escasas complicaciones. En los pacientes neurocríticos y con destete prolongado la técnica precoz reduce los días de ventilación y estancia, sin beneficio en la mortalidad.

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Introduction

Tracheostomy (TC) procedures in patients requiring extended mechanical ventilation are frequently performed in the intensive care unit (ICU). There is an ongoing debate with regards to the technique, the timing of the procedure, the impact of duration of mechanical ventilation¹ (MV), length of stay, and mortality.^{2,3} The best time to do the TC is still being debated.⁴

The contradictory results in the literature, and the lack of evidence in favor of early tracheostomy warrant further research to contribute with additional information about the procedure. The objective of the study was to describe the characteristics of patients with indication for TC, comparing early versus late groups.

Material and methods

An observational, descriptive study was performed in a cohort of patients admitted to the ICU with indication for

Table 1 – Principal diagnoses for ICU admission with tracheostomy indication (n = 42).

Pathologies	Number of cases (%)
Neurological critical pts ^a	20 (47.61%)
Multiple trauma	3 (7.14%)
Shock (septic and hypovolemic)	6 (14.28%)
Respiratory failure ^b	13 (30.95%)

^a Head and neck trauma, CVA, Status epilepticus.

^b Medical pathologies with extended mechanical ventilation.
Source: authors.

tracheostomy during 2012. The patients undergoing tracheostomy were selected analyzing the demographics, the underlying pathologies (classified as critical neurological patients, multiple trauma patients, state of shock and respiratory failure), severity scale at the time of admission (Apache II), type of technique (percutaneous or surgical), complications (immediate and late), duration of MV, length of stay in the ICU, and survival. Patients with a history of laryngectomy, emergency procedure due to airway obstruction, or limitations for life support therapy were excluded.

Following the indication for TC approved by consensus during a clinical session, the elective procedure was performed as per the current protocol. The study was approved according to the rules of the Ethics Committee on Clinical Research. The technique was decided based on the cervical anatomy and the clinical situation. The percutaneous approach was safe

Table 2 – Group characteristics of groups in terms of the timing of the procedure: early (up to 14 days in MV), late (after 14 days in MV).

	Early tracheostomy n = 27	Late tracheostomy n = 15	p-Value
Age (mean in years)	59.93	63.93	0.428
Gender % (males/females)	66.7/33.3	73.3/26.7	0.654
Apache II Mean, IQR	17[13–20]	18 [14– 20]	0.562

MV, mechanical ventilation.

IQR, inter quartile range, percentile 25–percentile 75.

Source: authors.

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