ISSN 3051-5475

PP-29-MTS

NASOGASTRIC TUBE (NGT) INSERTION IN ANESTHETIZED AND INTUBATED PATIENTS: A DIGITAL-ASSISTED METHOD TO REDUCE IATROGENIC ERRORS

Kahapola SS[1], Jazeer FI[1], Jayasooriya MSM[1], Jayasuriya DKU[1], Jayasuriya SA[1], Liyanaarachchi MR[2], Gunaratne NJDL[3]*

[1]Faculty of Medicine, University of Moratuwa; [2]Department of Electronic and Telecommunication Engineering, University of Moratuwa; [3]Department of Medical Education, Faculty of Medicine, University of Moratuwa

[*]Corresponding author:dkujaya2000@gmail.com

Doi: https://doi.org/10.31705/FOMAAS.2024.39

Background: Nasogastric tube (NGT) insertion is a critical procedure in clinical settings, especially for patients under anesthesia and intubation. The conventional method relies on patient cooperation, which is not feasible in unconscious individuals, leading to potential complications. This study aimed to develop a digital-assisted method for NGT insertion to minimize iatrogenic errors and improve success rates.

Methodology: A comprehensive literature review was conducted to identify limitations in conventional NGT insertion methods. Our design aims to develop a new digital-assisted method, incorporating a CO_2 detector for real-time placement verification, increasing the diameter of the proximal 9/10th of the NGT, and using silicon for the distal 1/10th. Various studies, including meta-analyses and clinical trials, were reviewed to assess the effectiveness of these modifications.

Deliverables: The studies that used modified methods demonstrated a higher success rate in first-attempt NGT insertions compared to conventional techniques, for example, the study by Mohanchandra Mandal which used frozen NGT had a successful rate of 84.6%. The use of a CO_2 detector and enhanced materials significantly reduced the risk of kinking and iatrogenic errors, leading to safer NGT insertions.

Conclusions: The introduction of a digital-assisted NGT insertion method, with the inclusion of a CO_2 detector and structural enhancements, will improve patient safety and insertion accuracy, especially in anesthetized patients. This method can potentially be a safer alternative to conventional NGT insertion techniques.

Keywords: NGT insertion, digital-assisted method, CO_2 detector, kinking prevention.