

Abstract

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Comparison of the Feasibility and Safety of Nasotracheal Suctioning With Curved Edge Catheter Versus Conventional Suction Catheter in Critically Ill Subjects: A Prospective Randomized Crossover Trial.

Grigoriadis KE¹, Angouras DC², Flevari A³, Xathos T⁴.

Author information

Abstract

BACKGROUND: Nasotracheal suctioning (NTS) is accomplished by inserting a suction catheter into the trachea through the nasopharynx. It is a useful procedure in critically ill patients whose ability to cough and mobilize secretions is impaired. It was assumed that using a suction catheter with an angular tip would facilitate entry into the trachea. The primary outcome was the success rate and the ease of insertion by using a curved edge catheter (Tiemann type) compared with a conventional suction catheter. The secondary outcome was the monitoring of subject's vital signs during the intervention.

METHODS: Non-intubated subjects hospitalized in 2 adult ICUs underwent 2 consecutive NTSs each, using either a 14 French curved edge catheter or a 14 French conventional suction catheter, randomly.

RESULTS: Twenty subjects with a mean age of 75.5 y were enrolled for a time period of 5 months. The tracheal access success rate was 19/52 (successful/unsuccessful attempts) using a curved edge catheter (36.5%, 95% CI 23.6-51.0%) compared with 12/130 (9.2%, 95% CI 4.8-15.5%) using a conventional suction catheter. The insertion was 5.6 times more likely to be achieved by using a curved edge catheter (odds ratio 5.66, 95% CI 2.49-12.84, P < .001). The number of attempts required to succeed in the insertion was significantly lower when using a curved edge catheter than when using a conventional suction catheter (for nasopharynx, median [range] of 1 [1] versus 2.5 [8], P = .001; for trachea, median [range] of 2 [9] versus 9 [9], P = .002). The time required for successful insertion into the nasopharynx and trachea was significantly shorter when using a curved edge catheter than when using a conventional suction catheter (for nasopharynx, median [range] of 3 [1] s versus 5.3 [18] s, P = .038; for trachea, median [range] of 6 [27] s versus 20 [25] s, P = .002). The traumatic rate (percentage of catheters with blood present on the tip) was exactly the same for both catheters (30%).

CONCLUSIONS: It is more likely that tracheal access will be achieved using a curved edge catheter. A shorter process time and fewer attempts are required for successful NTS using a curved edge catheter, and it seems to be an equally safe procedure. (ClinicalTrials.gov registration NCT02261428).

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KEYWORDS: Tiemann catheter; nasotracheal suctioning; suction catheter; tracheal access

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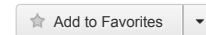
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