Minitracheostomy may facilitate hospital discharge of cardiac surgical patients who require prolonged postoperative mechanical ventilation. A single-centre retrospective cohort study

Katakura Y.¹⁾, Takaki S.¹⁾, Tsuji S.²⁾, Yamaguchi Y.¹⁾, Yamaguchi O.¹⁾, Goto T.¹⁾

1) Yokohama City University School of Medicine. Department of Anesthesiology and Critical Care Medicine

2) Yokohama Minami Kyousai Hospital. Department of Anesthesiology

Background

- Minitracheostomy (MT), a type of cricothyroidotomy, facilitates suction of tracheal secretion in the extubated patients.
- Although its efficacy has been proven for lung surgery,^{1,2} data was not yet available regarding cardiac surgical patients.

Minitracheotomy kit

Minitracheotomy procedure

Reference: Smiths-medical Website

Methods

Patient enrollment

Statistics

Analyzed data includes:

- The quantitative data as median and interquartile range using the Mann-Whitney U test and Fisher’s exact test
- The length of hospital stay, ICU stay, and VFD using the Cox proportional hazards regression technique
- The rate of reintubation data using multivariate logistic regression analysis for binary variable

Results

MT(+) group spent more time under operation and Aorta clamp time than Ex group.
Reintubation after extubation occurred at a significant higher rate in the MT(+) group compared to MT(-) group.
(MT(+):13/34 (38%) vs. MT(-):10/86 (12%), p=0.002)

Cox proportional hazards model

Confounding Variables	Hazard ratio (95% Confidential Interval)	p value
Hospital Stay		
<u>EuroSCORE II</u>	<u>0.97 (0.95 – 0.99)</u>	<u>0.004</u>
<u>Reintubation</u>	<u>0.31 (0.12 – 0.79)</u>	<u>0.01</u>
<u>VFD</u>	<u>1.12 (1.01 – 1.24)</u>	<u>0.04</u>
ICU Stay		
<u>MT</u>	<u>2.44 (1.29 – 4.62)</u>	<u>0.006</u>
<u>VFD</u>	<u>0.73 (0.65 – 0.81)</u>	<u><0.001</u>
<u>CCr</u>	<u>0.99 (0.98 – 1.00)</u>	<u>0.04</u>
Ventilator Free Days		
<u>MT</u>	<u>3.46 (1.86 – 6.42)</u>	<u>< 0.001</u>
<u>Reintubation</u>	<u>13.33 (5.47 – 32.48)</u>	<u>< 0.001</u>
<u>RSBI</u>	<u>1.03 (1.02 – 1.05)</u>	<u>< 0.001</u>
<u>Height</u>	<u>1.04 (1.00 – 1.07)</u>	<u>0.03</u>

Risk factor of reintubation

Confounding Variables	Odds ratio (95% Confidence Interval)	p.value
<u>BMI</u>	<u>0.80 (0.66 - 0.96)</u>	<u>0.02</u>
<u>MT</u>	<u>3.55 (1.11 - 11.30)</u>	<u>0.03</u>

Discussion

•Reintubation rate, ICU stay, and VFD showed significantly poorer results in the MT(+) group. However, for long-term outcome, Hospital stay, there was no significant difference between the two groups.

MT(+) group was supposed to be generally in worse condition compared to the MT(-) group.

⇒**MT insertion might prevent the deterioration of long-term outcomes.**

•In this study, MT was an independent factor predicting the risk of reintubation.

⇒**MT may not prevent reintubation.**

Conclusion

MT may prevent the deterioration of long-term outcomes in the cardiac surgery patients. Further studies regarding the indication for post cardiac surgical patients are needed.

I have no financial relationship to disclose.

Reference

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