

Are we actually fast tracking?

A Quality Improvement Project in Postoperative Care for the Cardiac Surgery Patient – Part 2

Authors

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Conflicts of interest

None

Topic/Keywords

Intensive care unit

Cardiac surgery

Fast track extubation

Enhanced Recovery after Cardiac Surgery (ERACS)

Objective

To study the impact of a standardized nurse-driven time-based fast track protocol on extubation time.

Background

Early extubation is a key component in enhanced recovery after cardiac surgery as it has been shown to improve outcomes and reduce costs ¹. In a previous retrospective observational study we performed a gap analysis identifying factors contributing to fast track extubation (FTE) failure ². Fifty percent of patients eligible for fast track (FT), failed to be extubated within 4 hours after ICU admission for no clear medical reason. We therefore implemented a standardized nurse-driven time-based FTE protocol in order to eliminate non-medical factors in extubation time.

Methods

This study is an observational single-center study after the implementation of a nurse-driven time-based FTE protocol in eligible adult patients undergoing cardiac surgery at OLV Aalst hospital from October 1st 2023 until January 31st 2024. Exclusion criteria were multiple valve surgery, mechanical cardiac support, heart transplant and intraoperative hemodynamic instability or respiratory difficulty. The FTE protocol was time-based with the aim of

extubation within 4 hours after ICU admission and nurse-driven in order to eliminate subjective and logistic reasons. The primary outcome was time to extubation.

Results

A total of 154 patients underwent cardiac surgery during the study period, 118 of them were found FT-eligible. Extubation within 4 hours after ICU admission was achieved in 90 patients (76%) with a mean (standard deviation) extubation time of 167 min (33 min). In 28 patients (24%) FT extubation could not be achieved, mostly caused by excessive blood loss (32%), neurocognitive dysfunction (25%), hemodynamic instability (14.3%), respiratory insufficiency (10.7%) and hypothermia (7.1%). In merely 10% of the failed FT extubations no clear medical reason could be assigned. Extubation within 3 hours could even be achieved in 51.7% of patients (see figure 1).

Discussion

In this study, we demonstrate the feasibility of a standardized nurse-driven time-based FTE protocol within 4 hours after a wide range of cardiac surgical procedures. After implementation, we achieved an increase of 29% of successful FTE (with mean extubation time decreased from 197 min to 167 min) compared to our previous study. Furthermore, failed extubation due to non-medical reasons was drastically reduced by 80%. This reflects awareness and the commitment of our team regarding the importance of early extubation.

Conclusion

The implementation of a standardized nurse-driven time-based fast track protocol is an effective tool to reduce mechanical ventilation after a wide range of cardiac surgical procedures.

Declaration of interests

No conflicts of interest

Funding

This work was supported by our own institution.

References

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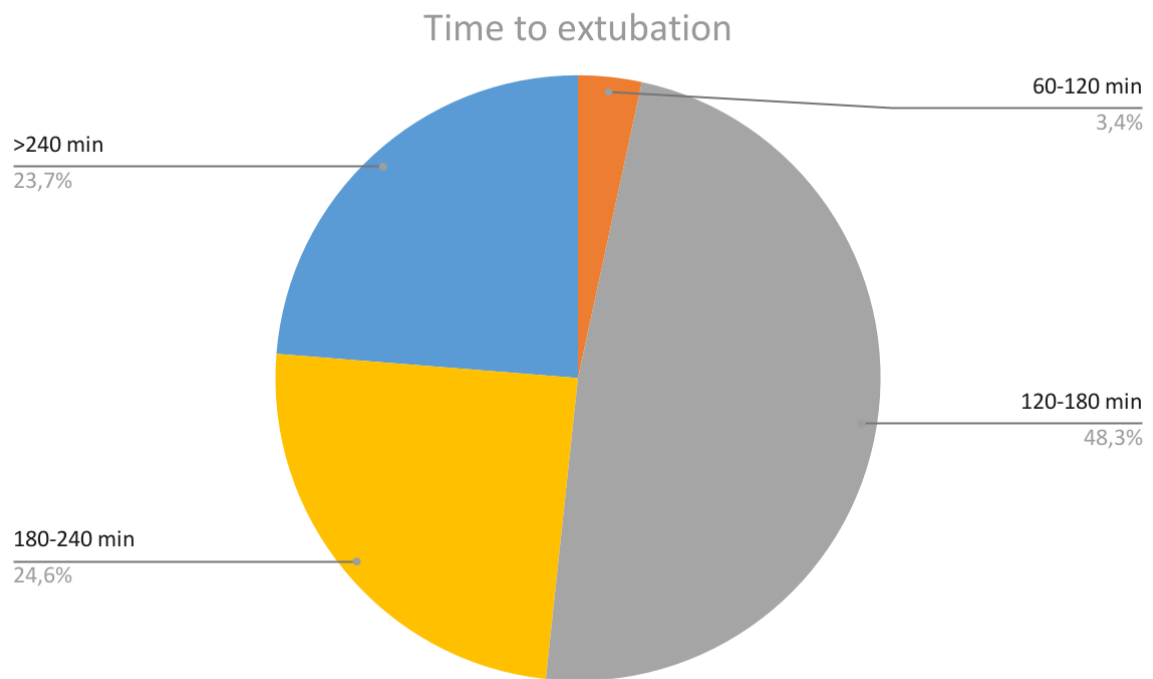


Figure 1 Time to extubation. Time from arrival at the ICU unit until extubation divided into four groups: within 2h, 3h, 4h and after 4h.