

早期氣管切開術有助於脫離呼吸器並縮短重症住院天數 - 義大醫院經驗

Early Tracheostomy Enhances Weaning of Mechanical Ventilator and Shortens ICU Stay
- Experience of E-DA Hospital

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Background

Prolonged mechanical ventilator use is associated with higher risk of pneumonia and lung trauma, longer ICU (intensive care unit) stay, and more medical expense. Tracheostomy may enhance weaning of mechanical ventilator and shorten ICU stay, and here we report the experience of E-DA Hospital, a medical center in Taiwan.

Method

This is a Quasi-Experimental Clinical Trial. All the patients admitted to ICU in E-DA Hospital with endotracheal intubation and ventilator use more than 3 days in 2020-Jun to 2021-Jun were screened. For the patients who were expected difficult weaning, their family would receive a standardized health education of tracheostomy in shared decision making (SDM) model. Patients were classified as tracheostomy and non-tracheostomy groups. Patients whose family refused SDM and the patients passed away were excluded. Duration of ventilator use, ICU and RCC (respiratory care center) stay were analyzed(Fig.1).

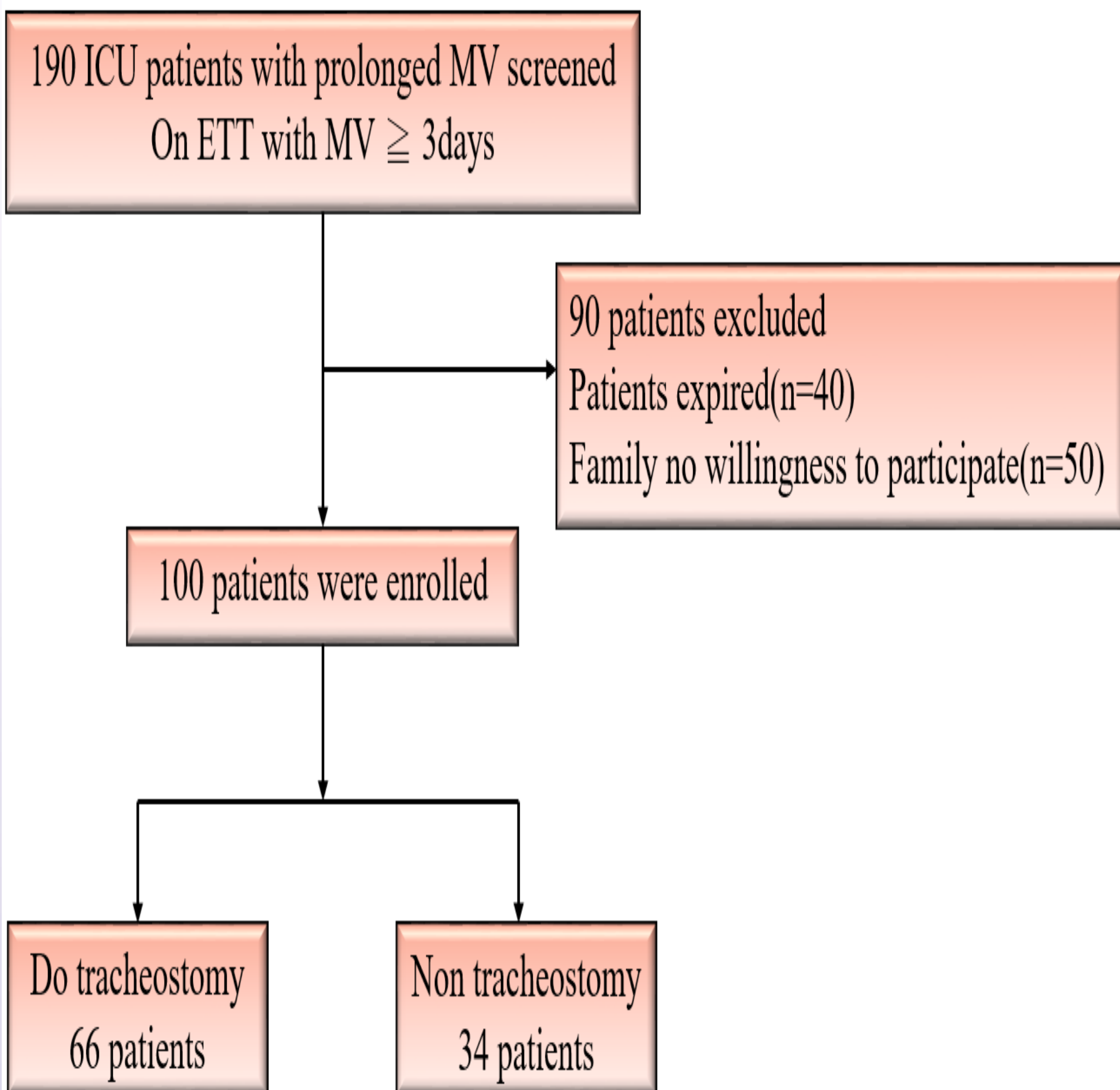


Figure 1. Flowchart of enrollment and outcomes. ICU= intensive care unit, MV=mechanical ventilation

Results

A total of 190 patients were screened and 100 patients were enrolled. There were 34 patients refused tracheostomy and 66 patients received tracheostomy. There were 20 patients had tracheostomy creation during the 1-14 days of ventilator use, 23 patients during 15-21 days, and 23 patients done after 21 days. Patients with tracheostomy done in 1-14 days of ventilator use had significantly shorter duration of ventilator use (26.05±19.14 vs 37.83±19.14 vs 43.7±12.40 days), ICU stay (20.70±10.98 vs 24.61±12.56 vs 32.22±14.95 days), and RCC stay (7.15±8.24 vs 15.96±14.39 vs 14.39±13.27 days) compared to tracheostomy done in 15-21 days and after 21 days of ventilator use(Table 1).

	Non-Tracheostomy (n=34)	Tracheostomy in 1-14 day (n=20)	Tracheostomy in 15-21 day (n=23)	Tracheostomy after 21 days (n=23)
Ventilator days	29.21±11.16	26.05±19.14*#	37.83±19.14*	43.7±12.40#
ICU days	20.18±10.46	20.70±10.98#	24.61±12.56	32.22±14.95#
RCC days	11.65±8.62	7.15±8.24 *#	15.96±14.39 *	14.39±13.27#

Table 1. Ventilator days, ICU days, RCC days in all four groups.

*significant differences between tracheostomy in 1-14 days vs 15-21 days in ventilator days, $p=0.16$; RCC days, $p=0.007$ by one-way MANOVA

significant differences between tracheostomy in 1-14 days vs > 21 days in ventilator days, $p=0.001$; ICU days, $p=0.021$; RCC days, $p=0.023$ by one-way MANOVA

Conclusion

The experience of E-DA Hospital suggests that tracheostomy enhances ventilator weaning and shortens the stay of ICU and RCC. The non-tracheostomy group had better outcomes than late tracheostomy should be related to the selection bias of patients. The benefit of tracheostomy is most significant when early done during 1-14 days of ventilator use.

References

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