

Early tracheal extubation after CABG saves money and resources

Early tracheal extubation after coronary artery bypass graft (CABG) surgery lowers costs and improves resource use compared with late tracheal extubation, according to researchers from Toronto Hospital in Ontario, Canada.

The researchers assessed total medical costs* and cardiovascular intensive care unit (CVICU) resource use for 100 patients (aged < 75 years) who received anaesthesia that allowed early (1–6 hours)** or late (12–22 hours)† tracheal extubation after CABG surgery.

The total CABG cost (adjusted for all complications) was 25% lower ($p = 0.02$) among those randomised to early extubation ($n = 50$; \$Can19 596/patient) than among those randomised to late extubation (50; \$Can26 116/patient).

Cost of uncomplicated CABG 9% lower

Among patients who actually underwent tracheal extubation within the allotted time, the total cost of uncomplicated CABG was 9% lower ($p = 0.001$) in the early extubation group ($n = 41$; \$Can17 640/patient) than in the late extubation group (41; \$Can19 339/patient). For these patients, the total actual CVICU cost was 18% lower among early extubation recipients (\$Can4830/patient) than among late extubation recipients (\$Can5892/patient; $p = 0.01$). This latter decrease in cost was largely a result of significant reductions in the use of CVICU nursing and supplies, medications and ventilator respiratory therapy.

Early extubation also resulted in significant reductions in CVICU and hospital durations of stay by accelerating postoperative recovery and promoting earlier patient mobility.

* Total medical costs were the sum of direct variable costs, direct fixed costs and overhead costs from hospital admission to discharge.

** Anaesthesia that allowed early tracheal extubation after CABG surgery comprised IV fentanyl 15 µg/kg, IV pancuronium bromide 0.15 mg/kg, isoflurane 0.5–2% and oxygen before CABG, as well as IV infusion of propofol 2–6 mg/kg/hour from the start of CABG until 1–4 hours after entering the CVICU (titrated to a Ramsay sedation score of 3–4).

† Conventional anaesthesia that led to prolonged sedation and late tracheal extubation comprised IV fentanyl 50 µg/kg, IV pancuronium bromide 0.15 mg/kg then midazolam 0.1 mg/kg prior to CABG and isoflurane 0.5–2% during CABG as required; morphine 2–10 mg/hour and midazolam 1–3 mg/hour (titrated to a Ramsay sedation score of 3–4) were administered in the CVICU.

Cheng DCH, Karski J, Peniston C, Raveendran G, Asokumar B, et al. Early tracheal extubation after coronary artery bypass graft surgery reduces costs and improves resource use: a prospective, randomized, controlled trial. *Anesthesiology* 85: 1300–1310, Dec 1996

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