Study examines outcomes of early vs. late tracheotomy for mechanically ventilated ICU patients

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Adult ICU patients who received tracheotomy 6 to 8 days vs. 13 to 15 days after mechanical ventilation did not have a significant reduction in the risk of ventilator-associated pneumonia, according to a study in the April 21 issue of *JAMA*.

Tracheotomy is a surgical procedure that is performed to replace endotracheal intubation (procedure in which a tube is placed into the windpipe [trachea], through the mouth or the nose, for the purpose of ventilating the lungs) in patients who are expected to require prolonged mechanical ventilation. Advantages of tracheotomy (incision of the trachea through the skin and muscles of the front of the neck to open a direct airway) include prevention of ventilator-associated pneumonia (VAP), earlier weaning from respiratory support and reduction in sedative use, according to background information in the article. There is considerable variability in the time considered optimal for performing tracheotomy. "This is of clinical importance because timing is a key criterion for performing a tracheotomy and patients who receive one require a large amount of health care resources," the authors write.

Pier Paolo Terragni, M.D., of the Uni¬versita di Torino, Turin, Italy, and colleagues examined whether tracheotomy performed earlier (6-8 days) vs. later (13-15 days) after laryngeal (larynx) intubation would reduce the incidence of VAP and increase the number of ventilator-free and intensive care unit (ICU)-free days. The randomized controlled trial,

performed in 12 Ital¬ian ICUs from June 2004 to June 2008, enrolled 600 adult patients without lung infection who had been ventilated for 24 hours. Patients who had worsening of respiratory conditions, unchanged or worse sequential organ failure assessment score, and no pneumonia 48 hours after inclusion were randomized to early tracheotomy (n = 209; 145 received tracheotomy) or late tracheotomy (n = 210; 119 received tracheotomy).

The researchers found that 30 patients (14 percent) had VAP in the early tracheotomy group and 44 patients (21 percent) had VAP in the late tracheotomy group. "The numbers of ventilator-free and ICU-free days and the incidences of successful weaning and ICU discharge were significantly greater in patients randomized to the early tracheotomy group compared with patients randomized to the late tracheotomy group; there were no differences between the groups in survival at 28 days," the authors write.

"In conclusion, our data show that in intubated and mechanically ventilated adult ICU patients with a high mortality rate, early tracheotomy did not result in a significant reduction in incidence of VAP compared with late tracheotomy. Although the number of ICU-free and ventilator-free days was higher in the early tracheotomy group than in the late tracheotomy group, long-term outcome did not differ. Considering that anticipation for tracheotomy of 1 week increased the number of patients who received a tracheotomy, and more than one-third of the patients experienced an adverse event related to tracheotomy, these data suggest that a tracheotomy should not be performed earlier than after 13 to 15 days of endotracheal intubation."

More information: *JAMA*. 2010;303[15]:1483-1489.