Use of sedation protocol does not reduce time on ventilator for children

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Among children undergoing mechanical ventilation for acute respiratory failure, the use of a nurse-implemented, goaldirected sedation protocol compared with usual care did not reduce the duration of mechanical ventilation, according to a study appearing in *JAMA*. The study is being released to coincide with its presentation at the Society of Critical Care Medicine's 44th Critical Care Congress.

Although sedation therapy benefits critically ill infants and children, it is also associated with adverse effects. Numerous studies in adult critical care support a minimal yet effective approach to sedation management. In contrast, few data inform sedation practices in pediatric critical care. Knowledge generated in adult critical care may not translate to the care of critically ill children, according to background information in the article.

Martha A.Q. Curley, R.N., Ph.D., of the University of Pennsylvania, Philadelphia, and colleagues studied 2,449 children (average age, 4.7 years) mechanically ventilated for acute respiratory failure in pediatric intensive care units (PICUs) to a sedation intervention (17 sites; n = 1,225 patients) or sedation with usual care (14 sites; n = 1,224 patients). The intervention PICUs used a protocol that included targeted sedation, arousal assessments, extubation (removal of breathing tube) readiness testing, sedation adjustment every 8 hours, and sedation weaning. Patients were followed up until 72 hours after opioids were discontinued, 28 days, or hospital discharge. The study (RESTORE) was conducted from 2009-2013.

The duration of mechanical ventilation, the primary outcome for the study, was not different between the 2 groups (intervention: median, 6.5 days vs control: median, 6.5 days). There were no group differences in the time to recovery from acute respiratory failure, duration of weaning from mechanical ventilation, PICU and hospital lengths of stay or 28- or 90-day in-hospital mortality. There were no significant differences in sedation-related adverse events including inadequate pain management, inadequate sedation management, extubation failure, ventilator-associated pneumonia, catheter-associated bloodstream infection, or new tracheostomy. Intervention patients experienced more postextubation stridor (an abnormal sound made when the breathing passages are narrowed; 7 percent vs 4 percent) and fewer stage 2 or worse immobility-related pressure ulcers (