

Kimura S et al. Effectiveness of corticosteroids for post-extubation stridor and extubation failure in pediatric patients: A systematic review and meta-analysis. Ann Intensive Care. 2020;10:155.

Objective: To determine the benefits of corticosteroids on post-extubation stridor and extubation failure in children.

Data source: PubMed, EMBASE, and reference lists of articles (till Feb 2019). Study selection: RCTs and observational studies on efficacy of systemic corticosteroid administration prior to elective extubation in mechanically ventilated children.

Data extraction: Outcomes: post-extubation stridor indicating laryngeal edema and extubation failures. Statistical analyses performed using R 3.6.0 (R foundation for Statistical Computing, Vienna, Austria).

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



CORTICOSTEROIDS FOR POST-EXTUBATION AIRWAY OBSTRUCTION IN CHILDREN

Data synthesis:

- Ten RCTs with 591 children were included.
- Seven studies evaluated post-extubation stridor/suspected upper airway obstruction and 9 studied extubation failure.
- In corticosteroid group: Pooled odds ratios (ORs) for post-extubation stridor/suspected upper airway obstruction: 0.40 (95% CI: 0.21-0.79). Pooled odds ratios (ORs) for extubation failure: 0.37; 95% CI, 0.22-0.61).
- Potential adverse effects of corticosteroids were infrequently assessed in the RCTs. Among them, hyperglycemia was the most frequently assessed potential adverse effect of corticosteroids, followed by gastrointestinal bleeding, infection & hypertension. Because of the small sample size and infrequent reporting of adverse effects of corticosteroids, analysis could not robustly assess the adverse effects of corticosteroids for pediatric patients.
- Limitations: Relatively small sample size in each RCT and wide ranges of ages and steroid administration regimens.

Conclusion:

Use of corticosteroids for prevention of post-extubation stridor and extubation failure could be considered to be acceptable in pediatric patients. These findings need careful interpretations because of a relatively small number of sample size in each RCT and varied corticosteroid administration regimens. Larger and properly conducted RCTs are needed to verify these results and provide adequate evidence of the side-effects, too.

EXPERT COMMENT



“Evidence shows benefit of corticosteroids administration for prevention of post-extubation airway obstruction. Commonly used regimen is: Dexamethasone 0.15-0.5 mg/kg/dose 6 hourly IV for 12-24 hours prior to extubation (4-6 doses).”

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Reference

Kimura, S., Ahn, J.B., Takahashi, M. et al. Effectiveness of corticosteroids for post-extubation stridor and extubation failure in pediatric patients: a systematic review and meta-analysis. Ann. Intensive Care 10, 155 (2020).
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