Incidence of Bradycardia and the Use of Atropine in Pediatric Rapid Sequence Intubation in the Emergency Department

Pediatric Emergency Care: April 23, 2021

Background & Objectives: Bradycardia during rapid sequence intubation (RSI) is an uncommon but serious adverse effect encountered in pediatric intubations. Atropine has historically been used in the pediatric population as RSI premedication to prevent bradycardia, especially when using succinylcholine as an induction agent. The objective of this analysis was to identify the incidence of bradycardia with or without atropine use.

Methods: This single-center, retrospective, observational case series reviewed pediatric patients up to 18 years old requiring intubation from January 1, 2015, to December 31, 2018. Bradycardia was determined by analyzing heart rates associated with time during and up to 5 minutes after intubation.

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

Pediatric Evidence And Research Learning Snippet

Is routine use of Atropine in Pediatric RSI needed ?

Results:

A total of 62 patients were included. Three (4.8%) patients experienced a bradycardic event during intubation. A total of 15 (24.2%) patients received atropine for pretreatment of RSI. Incidence of bradycardia was similar between those who received atropine and those who did not. An increasing trend in atropine use was shown throughout the assessment period, yet only 18 (29%) patients met criteria for atropine pretreatment based on the 2015 Pediatric Advanced Life Support guideline recommendations for RSI.

Conclusion:

Bradycardia incidence was low in pediatric patients undergoing RSI in emergency department. Use of atropine or succinylcholine did not affect the incidence of bradycardia during pediatric intubation over this study period. Our results show a low incidence of bradycardia and support the 2015 Pediatric Advanced Life Support Guideline recommendation of limiting the use of atropine premedication in pediatric intubations.

EXPERT COMMENT

“Pretreatment medications LOAD (Lidocaine, Opiold analgesic, Atropine, Defasciculating agents) are administered to mitigate physiologic response to laryngoscopy in RSI. In children, even if bradyarrhythmia occurs, it is clinically self limited and evidence suggest equal incidence of bradycardia with or without atropine during RSI. The available evidence does not support the routine use of atropine pre intubation of critically ill infants & children.”

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With warm regards,

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Reference

Kovacich NJ, Nelson AC, McCormick T, Kaucher KA. Incidence of Bradycardia and the Use of Atropine in Pediatric Rapid Sequence Intubation in the Emergency Department. Pediatr Emerg Care. 2021 Apr 23. doi: 10.1097/PEC.0000000000002382.