2010 AAP Statement regarding Atropine Versus Epinephrine for Bradycardia

Consensus on Science

Evidence from 1 LOE 3 study of in–hospital pediatric cardiac arrest observed an improved odds of survival for those patients who received atropine based on multivariate analysis, whereas the use of epinephrine was associated with decreased odds of survival. Another large LOE 3 study demonstrated no association between atropine administration and survival.

In 1 LOE 5 adult case series, 6 of 8 patients in cardiac arrest who did not respond to epinephrine did respond to atropine with a change to a perfusing rhythm; 3 survived to hospital discharge. An LOE 5 retrospective adult review observed that a small number of asystolic patients who failed to respond to epinephrine did respond to atropine, but none survived to hospital discharge.

Four LOE 5 adult studies showed a benefit of atropine in vagally mediated bradycardia. One small LOE 4 pediatric case series showed that atropine is more effective than epinephrine in increasing heart rate and blood pressure in children with post–cardiac surgical hypotension and bradycardia (Bezold–Jarisch reflex mediated bradycardia).

Four LOE 5 adult and 4 LOE 5 animal studies showed no benefit from atropine used to treat bradycardia or cardiac arrest. One LOE 5 animal study did show a benefit of atropine when used with epinephrine in cardiac arrest.

Treatment Recommendations

Epinephrine may be used for infants and children with bradycardia and poor perfusion that is unresponsive to ventilation and oxygenation. It is reasonable to administer atropine for bradycardia caused by increased vagal tone or cholinergic drug toxicity. There is insufficient evidence to support or refute the routine use of atropine for pediatric cardiac arrest.