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The Association of the Average Epinephrine Dosing Interval and Survival With Favorable Neurologic Status at Hospital Discharge in Out-of-Hospital Cardiac Arrest.

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Abstract

STUDY OBJECTIVE: For patients with out-of-hospital cardiac arrest, the recommended dosing interval of epinephrine is 3 to 5 minutes, but this recommendation is based on expert opinion without data to guide optimal management. We seek to evaluate the association between the average epinephrine dosing interval and patient outcomes.

METHODS: In a secondary analysis of the Resuscitation Outcomes Consortium continuous chest compression trial, we identified consecutive patients treated with greater than or equal to 2 doses of epinephrine. We defined average epinephrine dosing interval as resuscitation duration after the first dose of epinephrine divided by the total administered epinephrine, and categorized the dosing interval in minutes as less than 3, 3 to less than 4, 4 to less than 5, and greater than or equal to 5. We fit a logistic regression model to estimate the association of the average epinephrine dosing interval category with survival with favorable neurologic status (modified Rankin Scale score ≤3) at hospital discharge.

RESULTS: We included 15,909 patients (median age 68 years [interquartile range 56 to 80 years], 35% women, 13% public location, 46% bystander cardiopulmonary resuscitation, and 19% initial shockable rhythm). The median epinephrine dosing interval was 4.3 minutes (interquartile range 3.5 to 5.3 minutes). Survival with favorable neurologic status occurred in 4.7% of patients. Compared with the reference dosing interval of less than 3 minutes, longer epinephrine dosing intervals were associated with lower survival with favorable neurologic status: dosing interval 3 to less than 4 minutes, adjusted odds ratio 0.44 (95% confidence interval 0.32 to 0.60); 4 to less than 5 minutes, adjusted odds ratio 0.26 (95% confidence interval 0.18 to 0.36); and greater than or equal to 5 minutes, adjusted odds ratio 0.21 (95% confidence interval 0.15 to 0.30).

CONCLUSION: In this out-of-hospital cardiac arrest series, a shorter average epinephrine dosing interval was associated with improved survival with favorable neurologic status.