Survival from Pediatric In-Hospital Cardiac Arrest Is Worse at Night Compared with Days and Evenings: A Report from the AHA Get With the Guidelines-Resuscitation Registry

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Cardiac arrest survival varies significantly between and within hospitals. Adult in-hospital cardiac arrest incidence, process of care and outcomes vary by time of day, with worse survival at night (Peberdy JAMA 2008). Occurrence of in-hospital pediatric cardiac arrest survival outcomes have not been characterized by time of day.

Hypothesis: Children with in-hospital cardiac arrest at night have lower survival compared to arrest during days/evenings.

Methods: We examined 10,541 consecutive pediatric (<18yrs, Jan 2000-Sep 2010) cardiac arrest events reported to the Get With The Guidelines - Resuscitation (GWTG-R) registry. We defined night as 11pm to 0659am and day/evening as 7am-1059pm, and our primary outcome was survival to hospital discharge. Exclusions included any arrest in the delivery room. Univariate and multivariable logistic regression using a priori characteristics (age, first documented rhythm, location in hospital, E-CPR and hypotension cause of arrest) was performed.

Results: Of 10,541 arrests: 3260 (31%) occurred during night and 7281(69%) during day/evening hours. Survival to hospital discharge was significantly lower for patients experiencing cardiac arrest occurring at night (34%) vs.day/evening (38%, p<0.001). Patients characteristics at night were not significantly different from day/evening for age, sex, race, first documented pulseless rhythm or time to defibrillation (p>0.05). After adjusting for predefined covariables, survival to hospital discharge after arrest at night remained significantly lower compared to days/evenings (adjusted OR 0.87; 95% CI: 0.78 to 0.97).

Conclusion: Survival to discharge from in-hospital pediatric cardiac arrests were lower if they occurred at night compared to day/evening hours, even when accounting for common patient, event, and hospital characteristics.