

# **In-hospital cardiac arrest occurring during night, weekends may lower patient survival rate**

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Patients who have an in-hospital cardiac arrest at night or on the weekend have a substantially lower rate of survival to discharge than hospitalized patients who experience a cardiac arrest during day/evening times on weekdays, according to a study in the February 20 issue of JAMA.

The detection and treatment of cardiac arrests may be less effective at night because of patient, hospital, staffing and response factors. If in-hospital cardiac arrests are more common or survival is worse on nights and weekends, this information could have important implications for hospital staffing, training, care delivery processes and equipment decisions, according to background information in the article.

Mary Ann Peberdy, M.D., of Virginia Commonwealth University, Richmond, Va., and colleagues evaluated survival rates for adults with in-hospital cardiac arrest by time of day and day of week. The study included data on 86,748 adult, in-hospital cardiac arrest events occurring at 507 medical/surgical hospitals participating in the American Heart Association's National Registry of Cardiopulmonary Resuscitation from January 2000 through February 2007. The researchers examined survival from cardiac arrest in hourly time segments, defining day/evening as 7:00 a.m. to 10:59 p.m., night as 11:00 p.m. to 6:59 a.m., and weekend as 11:00 p.m. on Friday to 6:59 a.m. on Monday.

A total of 58,593 cases of in-hospital cardiac arrest occurred during day/evening hours (including 15,110 on weekends), and 28,155 cases occurred during night hours (including 7,790 on weekends).

The researchers found that rates of survival to discharge (14.7 percent vs. 19.8 percent), return of spontaneous circulation for longer than 20 minutes (44.7 percent vs. 51.1 percent), survival at 24 hours (28.9 percent vs. 35.4 percent), and favorable neurological outcomes (11.0 percent vs. 15.2 percent) were substantially lower during the night compared with day/evening.

Survival to discharge at night was similar during the week (14.6 percent) and weekends (14.8 percent). Survival during day/evening weekdays (20.6 percent) was higher than on weekends (17.4 percent).

“The principal finding of this study was that survival to discharge following in-hospital cardiac arrest was lower [when the arrest occurred] during nights and weekends compared with day/evening times on weekdays, even after accounting for many potentially confounding patient, arrest event, and hospital factors,” the authors write.

“The mechanism for the decreased survival during the night is likely multifactorial, potentially including biological differences in patients as well as health care staff and hospital staffing and operational factors. These data suggest the need to focus on night and weekend hospitalwide resuscitation system processes of care that can potentially improve patient safety and survival following cardiac arrest,” the researchers conclude.

Source: JAMA and Archives Journals

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