Survival predictors of cardiac arrest in the ICU

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The type of cardiac arrest suffered by patients in intensive care units (ICUs) may predict their long-term survival rate, states a study in *CMAJ* (*Canadian Medical Association Journal*).

Cardiac arrests are the leading cause of death in North America. They affect more than 200 000 people each year, and less than 25% of people survive to hospital discharge.

Researchers from the University of Alberta sought to understand survival rates for people who suffer cardiac arrest in the ICU. They looked at data over a five-year period (January 2000 to April 2005) from four Alberta hospitals with coronary care units and general ICUs, including survival rates at one and five years as well as short-term rates. Most studies focus on survival to discharge from hospital compared with longer-term survival.

The study included 517 patients, with 62% male participants and a mean age of 67 years. Of these, 27% survived to hospital discharge, 24% to one year and 16% to five years. General ICU patients were more likely to die in the ICU compared with coronary care or cardiac surgical ICU patients. Time of day of cardiac arrest did not affect survival to discharge.

Factors associated with a high risk of death after cardiac arrest in the ICU include pulseless electrical activity or asystolic arrest, longer duration of resuscitation and decreased long-term survival with advanced

age.

"Although overall survival among ICU patients may have greatly improved, survival among those experiencing cardiac arrest in the ICU, particularly arrest due to pulseless electrical activity or asystole, remained comparatively poor," states Dr. Demetrios Kutsogiannis, University of Alberta, with coauthors.

"We hope this study will help inform the public about outcomes after arrests in hospital intensive and coronary care units," state the authors. "It is hoped that improved informed decision-making regarding end-of-life resuscitation attempts may occur between patients, families and their physicians prior to serious illness and potential coronary or ICU care."

With the advancing age of the Canadian population, informed decision-making in end-of-life care is becoming more important to respect the wishes of patients and their families.

"In-hospital arrests represent a much more heterogeneous group of diseases, both with respect to the underlying medical condition of the patient, the cause of the arrest and the resuscitation environment (e.g., [ICU] v. general ward)," writes Dr. Benjamin Abella, Center for Resuscitation Science and the Department of Emergency Medicine, University of Pennsylvania, in a related commentary. Patients in the ICU have different diseases and conditions, and these may influence cardiac survival rates.

"Patients whose pathophysiology allows for rapid reversal after in-hospital cardiac arrest, such as the patient with myocardial infarction…have a strong potential for survival and should receive aggressive treatment, both during and after resuscitation," he states.

Customizing evaluation and treatment of cardiac arrests to better

understand the underlying causes and outcomes may help improve patient [survival rates](#).

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