

IMPLEMENTATION OF THE 2005 AMERICAN HEART ASSOCIATION GUIDELINES TOGETHER WITH THE IMPEDANCE THRESHOLD DEVICE IMPROVES HOSPITAL DISCHARGE RATES AFTER IN-HOSPITAL CARDIAC ARREST

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Introduction: Survival after in-hospital cardiac arrest (I-HCA) remains low, despite rapid care by trained medical personnel. An estimated 1,000 patients die each day in the United States alone from I-HCA. Determine the impact of the 2005 American Heart Association (AHA) resuscitation guidelines and use of an impedance threshold device (ITD) on survival after I-HCA.

Hypothesis: Greater circulation delivered by combining more efficient and effective CPR together with an ITD, recommended in the 2005 AHA Guidelines to increase circulation and return of spontaneous circulation rates during CPR, will increase survival after I-HCA.

Methods: Two community hospitals that are early adopters and track outcomes after I-HCA compared hospital discharge rates from before and after implementation of the new AHA CPR and ITD (ResQPOD™, Advanced Circulatory Systems, Eden Prairie, MN) protocols. The intervention included an emphasis on the proper ventilation rate, full chest wall recoil, continuous CPR once the patient was intubated, and use of the ITD that included a timing light to guide the rate of positive pressure ventilations and compressions. St. Cloud Hospital tracks outcomes following the National CPR Registry template. IRBs at the respective hospitals approved the study.

Results: St. Cloud Hospital, St. Cloud, Minnesota is a 500 bed hospital with ~ 13 I-HCA/month. Historical control data were obtained from the prior 18 months (8/2005-8/2006) and the intervention group was for the subsequent 18 mo. In St. Dominic Hospital, Jackson Mississippi, a 570 bed hospital with ~12 I-HCA/month, historical control data were used from the prior 12 months (6/2005-6/2006) and the intervention group was from the subsequent 12 mo. The combined hospital discharge rate for patients (n=390) with an I-HCA was 20.7% in the control phase versus 35.8% in the intervention phase (n=341 patients) (p<0.001 by Chi square test). In both hospitals implementation of the new Guidelines including the ITD was easily performed with in-servicing and there was no increase in complication rates with the new method and device.

Conclusion: Implementation of improved ways to increase circulation during CPR resulted in a marked increased in-hospital discharge rates >70% compared with historical controls in two large community hospitals. These data demonstrate that immediate care with improved means to circulate blood during CPR can significantly reduce hospital mortality rates after in-hospital sudden cardiac arrest.