Top Ten Things To Know
Pre-resuscitation Factors Associated with Mortality in 49,130 Cases of In-Hospital Cardiac Arrest (IHCA): A Summary

1. Most IHCA events have CPR initiated; it is unknown whether some factors better predict those who may obtain return of spontaneous circulation (ROSC).

2. This study had several purposes:
   - To identify pre-arrest predictors of IHCA event mortality
   - To construct a multivariate logistic regression model using those significant variables
   - To assess model performance
   - To quantify the effect of each variable and
   - To discuss applying results to clinical settings.

3. The primary outcome was in hospital mortality.

4. Of the 49,130 NRCPR* adult patients studied, a majority did not survive the IHCA event (55.2%) and 84.1% had poor outcome (82.6% died and 1.5 % were discharged with unfavorable neurologic function).

5. Pre-arrest factors identified by multivariate analysis to predict event mortality are
   - increasing age
   - septicemia
   - black race
   - hepatic insufficiency
   - non cardiac, non surgical illness
   - general floor or ED location
   - pre-existing malignancy
   - use of vasopressor
   - acute stroke
   - assisted or mechanical ventilation
   - trauma

6. With the analytical methods utilized this study was unable to define a well-calibrated, highly-discriminating, pre-resuscitation mortality prediction model that could be reliably used to aid resuscitation discussions.

7. The sensitivity of 3 variable subgroups (variables known on admission; known prior to arrest; and known at arrest) of the patient’s condition was tested for sensitivity in predicting mortality.

8. The model’s area under the receiver-operator characteristic curve (.67) implies that the mortality probability is randomly chosen only about two thirds of the time. Note, the closer the area under the curve is to one the more ideal a test is, as one indicates both 100% sensitivity and 100% specificity.

9. At present, the predictive utility of “chronic” or “demographic” type information for cardiac arrest patients appears limited. This is an example of one of the variable subgroups.

10. Future work examining more physiologically-based measures employing acuity assessments near the time of arrest, or focusing on longer-term survival outcomes may provide a better understanding of the factors that influence CPR survival.

*Get With The Guidelines® Resuscitation, formerly NRCPR, is a performance improvement tool that can be used to identify and monitor key process variables and patient outcomes for in-hospital cardiac arrest.

ECC statements and guidelines | Heart Disease and Stroke Statistics 2010


© 2010, American Heart Association. All rights reserved.