Journal reading

Intern：韓昇宏
Supervisor：Dr.洪世文
101.10.11

The use of end-tidal carbon dioxide monitoring in patients with hypotension in the emergency department

Cite this article as: Kheng and Rahman International Journal of Emergency Medicine 2012 5:31

Background

- To determine the usefulness of end tidal carbon dioxide (ETCO2) monitoring in hypotensive shock patients presenting to the ED

Methods

- 103 adults in shock with hypotension presenting to the ED were recruited
- Different types of shock with hypotension：
  1. hypovolemic
  2. cardiogenic
  3. septic
  4. others

- Inclusion criteria：
  1.Patient aged 18 years old and above on the day of presentation
  2.Be in any kind of shock state managed in the ED
  3.Initial blood pressure below systolic of 90 mmHg or MAP<60 mmHg.
  4.Able to attach the capnometer probe easily

- Exclusion criteria:
  1.Patient who arrives in asystole or in a terminal rhythm.
  2.BP is unrecordable by standard non-invasive BP monitoringon arrival.
  3.Received resuscitation in the primary health center before transport to the study center.
  4.End-of-life, terminally ill and have advanced directives for do not resuscitate.
  5.A complex pulmonary pathology that affects the ETCO2

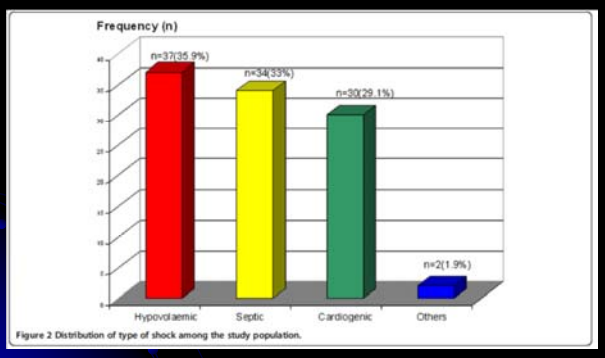


Figure 2 Distribution of type of shock among the study population.

- Vital signs and ETCO2 were measured on presentation and at 30-min intervals up to 120 mins
- All patients were managed according to standard protocols and treatment regimes
- Patient survival up to hospital admission and at 30 days was recorded

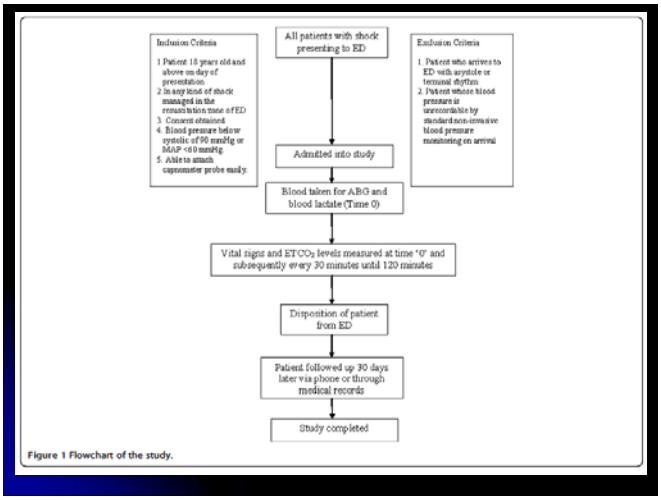


Figure 1 Flowchart of the study.

Result

- Mean ETCO2 for all patients on arrival was 29.07 ± 9.96 mmHg.
- ETCO2 for patients in hypotension：
  Hypovolemic： 29.64 ± 11.49 mmHg
  Cardiogenic：28.60 ± 9.87 mmHg Septic：
  27.81 ± 7.39 mmHg

- Early ETCO2 were significantly lower in patients who did not survive to hospital admission.
- All patients who had ETCO2 ≤ 12mmHg died in the ED.
- Normal ETCO2 does not ensure patient survival.

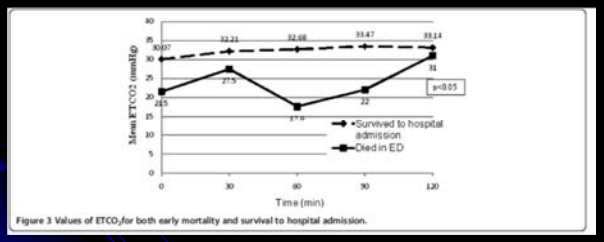


Figure 3 Values of $ETCO_2$ for both early mortality and survival to hospital admission.

Conclusion

- The use of ETCO2 monitoring has great potential to be used as a non-invasive method for patients in shock.

Maternal cardiac arrest and perimortem caesarean delivery: Evidence or expert-based

Sharon Einava,⁎, Nechama Kaufmanaa,b, Hen Y. Selac
a The General Intensive Care Unit of the Shaare Zedek Medical Centre, Jerusalem, Israel
b The Department of Emergency Medicine of the Shaare Zedek Medical Centre, Jerusalem, Israel
c The Department of Obstetrics and Gynaecology, Division of Maternal Fetal Medicine, Columbia University Medical Center, New York, USA

Aim

- To examine the outcomes of maternal cardiac arrest in current resuscitation and obstetric guidelines
- Whether the 4-min time frame from arrest to perimortem caesarean delivery (PMCD) is benefial.

Data sources and methods

- All review and data maternal cardiac arrests occurring prior to delivery (1980–2010).
- Outcomes assessment：
  1.Survival
  2.Cerebral Performance Category (CPC)
  3.Maternal/neonatal harm/benefit from PMCD

Result

- Total：94 cases
- Maternal outcome：
  1.Survived to hospital discharge：54.3% (51/94)
  2.CPC of ½：78.4% (40/51)
  3.CPC ≧3：21.6% (11/51)

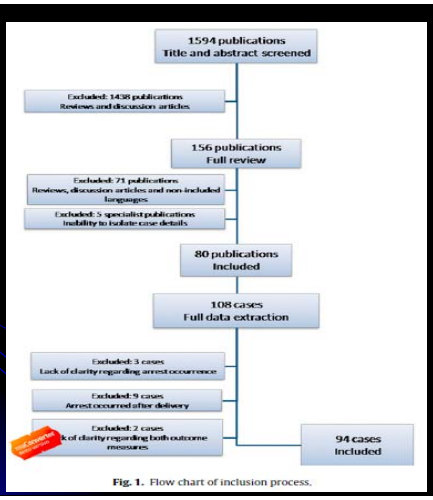


Fig. 1. Flow chart of inclusion process.

- PMCD was determined to have been beneficial to the mother in 31.7% of cases
- There was no harm in any case conducted PMCD.
- In-hospital arrest and PMCD within 10 min of arrest were associated with better maternal outcome.

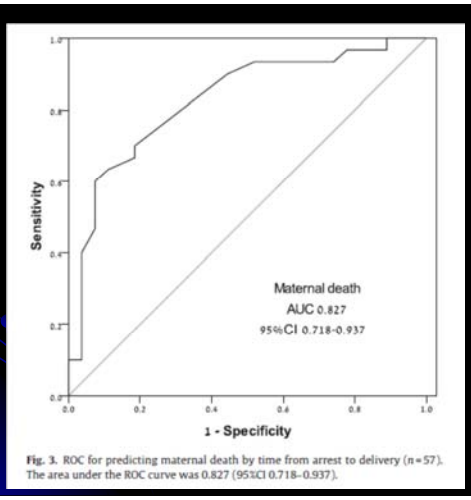


Fig. 3. ROC for predicting maternal death by time from arrest to delivery (n = 57). The area under the ROC curve was 0.827 (95%CI 0.718–0.937).

- Neonatal outcome：
  mean times from arrest to delivery：
  Survivors：14±11 minutes
  Non-survivors：22±13 minutes
- Neonatal survival was only associated with in-hospital maternal arrest.

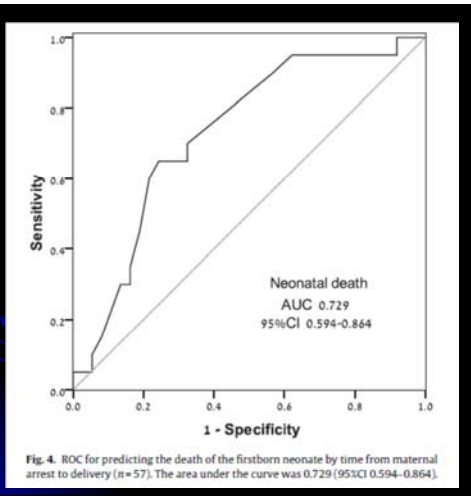
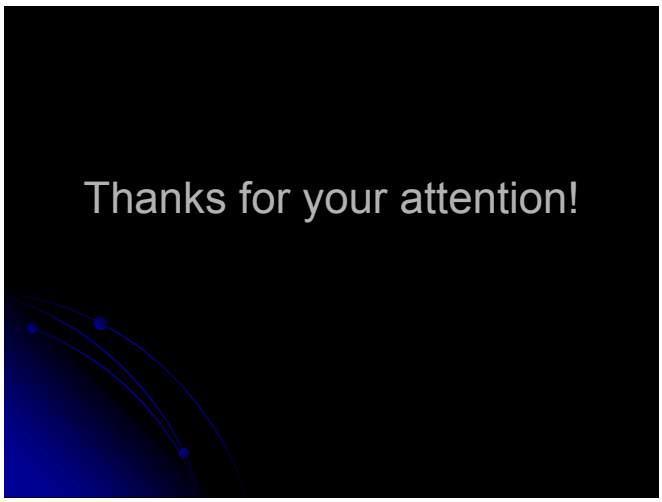


Fig. 4. ROC for predicting the death of the firstborn neonate by time from maternal arrest to delivery (n = 57). The area under the curve was 0.729 (95%CI 0.594–0.864).

Conclusion

- Recognization is limited by poor reporting quality and possible reporting bias in spite of the prevalence of 14% in U.S..
- The data from these cases should be systematically collected.

- It would be much easier if the recommendations were evidence-based rather than expert-based.
- Cognitive dissonance may delay both situation recognition and the response to maternal collapse.


Thanks for your attention!