



Applying ACLS and Pregnancy Modifications to Maternal Cardiac Arrest

A Team-based Approach

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Background

- Maternal cardiac arrest (MCA) is a rare but often fatal emergency.
- Obstetricians and perinatal nurses are often first responders to MCA events and have limited experience in management of primary cardiac arrest.
- Delivery of the fetus ≤ 20 weeks gestation in ≤ 5 min is critical in cardiac arrest in pregnancy.
- Multidisciplinary simulations improve performance in catastrophe management.
- Few studies regarding MCA simulation education exist.

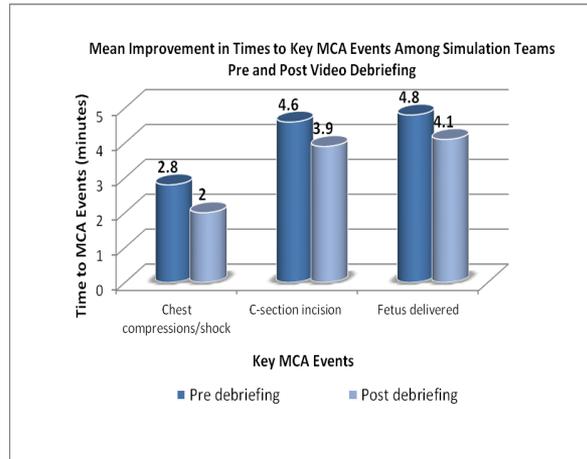
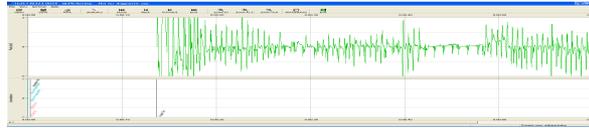
The Intervention

- 161 labor and delivery personnel completed a computer based training session (CBT) on ACLS pregnancy modifications. Pre and post tests were given to evaluate material retention.
- Video recorded MCA simulation scenarios were completed in teams of 6-9 over a 2 month period.
- A debriefing occurred after one video scenario allowing teams to implement video reviewed techniques in a second scenario.
- Times to key MCA response events (chest compressions/AED pad application, C-section incision, delivery of fetus) were compared before and after debriefings.

Aims

To improve retention of ACLS pregnancy modifications by demonstrating the skill set in a video recorded multidisciplinary simulation scenario after completing didactic computer based training (CBT).

Key times to MCA response events: chest compressions/AED pad application (≤ 2 min), C-section incision (≤ 4 min), delivery of fetus (≤ 5 min).



Results

- Post test scores for the CBT reflected statistically significant improvement in ACLS pregnancy modification knowledge (78% vs 92%, $p=0.001$).
- Teams demonstrated improvement in times to key MCA response events.
- Time to chest compressions/ AED pad application, $p=0.002$, time to C-section incision, $p=0.002$, delivery of fetus, $p=0.003$.

Conclusions

- Timely initiation of ACLS pregnancy modifications is crucial to maternal survival in a MCA event.
- Didactic training and multidisciplinary simulation can improve recall and retention of ACLS cardiac arrest pregnancy modifications.
- Simulation can improve first responder communication and timely resuscitation in a MCA emergency.

References

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