Obstetrical Crisis Simulation Course Maternal Condition "O" Urgent Cesarean Delivery with General Anesthesia

Dalby PL, Waters J, Stein K, Wise N, Nelson P, Simhan H, Gosman G

Peter M. Winter Institute for Simulation, Education and Research (WISER) Pittsburgh, PA 15213

http://www.wiser.pitt.edu

University of Pittsburgh and the University of Pittsburgh Medical Center

ABSTRACT

Introduction: Anesthesia practices in labor and delivery at Magee-Womens Hospital (MWH) utilize predominantly regional anesthesia techniques with only 2-3% of cesarean sections employing general anesthesia. Anesthesia residents rotate for two month rotations in the labor and delivery suite, some never encounter situations during which to provide general anesthesia to parturients. General anesthesia is employed primarily for emergent operations thus there has been concern in the anesthesia community about training of emergent general anesthesia for cesarean delivery becoming a rare event. (1)In early 2005 MWH developed a crisis team management response to obstetrical and fetal emergencies called "Condition O". Multidisciplinary misunderstandings, poor communication, and failure of team dynamics were cited as possible contributory factors related to poor outcomes and may be exacerbated in emergency situations. Urgent cesarean delivery with general anesthesia, "stat c/s", may be one of those situations. The capabilities of a preexisting high fidelity simulation center (WISER Institute) at our institution allowed development of a multidisciplinary Obstetrical Crisis Team Training Course. Non-operating room training in urgent general anesthesia logistics for multi-disciplinary team participants is possible during this course.

Methods: At MWH during a Condition O, a pager system overhead then summons a team to the patient's bedside with representatives from: Critical care medicine, Obstetrics, Residents from Obstetrics and Anesthesia, Obstetrical Nurses, Anesthesiology, Delivery and administrative personnel. Obstetrical, Nursing, and Anesthesia trainees participate in the WISER course. At WISER similar roles to those at MWH are assumed by course participants and emergency scenarios acted out by participants who eventually must call a Condition O. One important simulation involves labor room to OR management of a prolonged fetal heart rate pattern deceleration evolving into a emergency cesarean section utilizing general anesthesia. At WISER web-based study and pre-course surveys are reviewed, participants are briefed, then contribute to simulation scenario that is filmed and viewed. Participants are then debriefed on performance, team interactive, and communication skills. Post course surveys will evaluate short term and long term participant reaction.

Results: To date, 10 anesthesia trainees have participated in the course. Participants have voiced appreciation of the logistical power of "Condition O", different disciplines problems, and crisis team dynamics appear enhanced immediately after the course. Long term anesthesia post- course evaluations are presented.

Conclusions: A multidisciplinary team training course using full scale human simulation can improve anesthesia residents' perceptions of their confidence and skill in performing emergency obstetric GA and dealing with other obstetric crisis situations.

References: 1. Anaesthesia 55 p63-183; 2000

INTRODUCTION

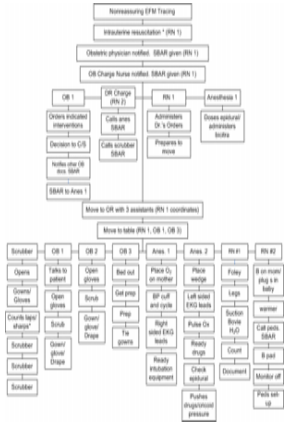
Anesthesia practices in labor and delivery at Magee-Womens Hospital (MWH) utilize predominantly regional anesthesia techniques with only 2-3% of cesarean sections employing general anesthesia (GA). Anesthesia residents rotate for two month-long rotations in the labor and delivery suite. Some of these trainees may never give GA to a parturient. GA is employed primarily for emergent operations, thus there is concern in the anesthesiology community about trainees achieving competence in this area. (1)

INTRODUCTION

A preexisting high fidelity simulation center (the Peter M. Winter Institute for Simulation, Education and Research, called WISER) at our institution allowed development of a multidisciplinary Obstetric Crisis Team Training Course (OCTT). This course allows trainees to practice the performance of urgent GA for parturients.

In this study, we surveyed anesthesia residents who participated in the OCTT about their perceived competence and confidence with emergent GA in the obstetric patients, and with other obstetric crisis situations.

Obstetrical Crisis Team Training Emergent C/S Algorithm



METHODS

A team of anesthesiologists, obstetricians, and obstetric nurses developed the OCTT simulation course in order to train the obstetric-specific crisis team at MWH. This crisis response is called "Condition O." Responders include an 8-member multidisciplinary team involving anesthesiology, obstetrics, nursing, respiratory, and critical care. The course is focused on teaching potential crisis team members the essential skills of working together as a team in critical scenarios.

The course takes place at WISER monthly and lasts 4 hours. Participants in the course include anesthesiology attendings and residents, obstetric attendings and residents, and obstetric nurses. Pre-course participants review an online presentation that focuses on optimizing crisis team function, suggested team algorithms, and learning issues for core obstetric crises. Participants take a pre-course survey on attitudes toward simulation and perceived confidence/competence with obstetric crises, as well as a knowledge pre-test.

METHODS

On the day of the course, participants listen to a brief lecture focusing on team function. A facilitator then orients them to the simulation environment, including the labor room, operating room, medications, location of key equipment, etc. Participants then take part in 3-4 simulated obstetric emergencies. Their performance is taped. After each crisis, the team assembles in a debriefing room for video review and structured debriefing. Facilitators representing each of the 3 disciplines help guide the discussion. The focus of the debriefing is on improving team crisis skills and debriefing performance.

One of the core scenarios is a fetal bradycardia in a patient without a functioning epidural who ultimately requires an emergency cesarean section. This is an excellent scenario to allow anesthesiology trainees to learn and practice the team skills and the decision making skills required for optimal obstetric crisis patient outcomes. After the participants have debriefed the final scenario, they complete a post-course survey similar to the pre-course survey.

For this study, we administered a separate 10-item survey to anesthesiology resident participants 1 to 10 months after they had done the OCTT. The survey was adapted from that used by the Center for Advanced Pediatric and Perinatal Education (CAPE) obstetric emergencies course at Stanford University. The survey utilizes a 4 point Likert scale system with some additional specific answers. Results are presented as median with interquartile ranges and mode values.

Teamwork Performance Debriefing Tool

RESULTS

8 of 10 anesthesiology resident participants completed the survey (response rate 80%). The mean interval from OCTT to survey completion was 3.5 months (range 1-10). Survey results are presented below.

100% of respondents stated that they would recommend that other anesthesiology providers take the OCTT course.

Obstetric Crisis Team Training Course Anesthesia Post-Course Survey

Question on OCTT Survey 1-9 Graded Scale 1 = not at all; 2 = somewhat; 3 = moderate; 4 = significant	Median Answer &Hi – Lo (IQR) Interquartile range (Mode)
1. My communication skills have improved at work	3 IQR 2 – 3.25 (3)
2. My level of awareness of teamates needs has improved	3.5 IQR 3-4 (4)
3. I feel more confident about my ability to provide general anesthesia for an emergency c-section	3 IQR 3-3.25 (3)
4. I have a better understanding of communication issues involved in 3.	4 IQR 2.75-4 (4)
5. My skill in administering a general anesthetic to a parturient for an emergency c-section has improved	3 IQR 3-4 (3)
6. The amount my confidence has increased during an obstetrical crisis	3 IQR 2.75-4 (3)
7. The time it takes me to identify a maternal/ fetal crisis and execute a procedure has improved since OCTT	3.5 IQR 2-4 (4)
8. My ability to assume a clear role during an obstetrical crisis has improved	3 IQR 2.75 -4 (3)
9. The amount I learned from participants during OCTT from other specialties than me	3.5 IQR 3-4 (4)
10. I have had additional opportunities to administer general anesthesia for an emergency c-section since OCTT	Yes 4 No 4 Average # times 1

CONCLUSIONS

A multidisciplinary team training course using full scale human simulation of obstetric emergencies can improve anesthesia residents' perceptions of their confidence and skill in performing emergency obstetric GA and dealing with other obstetric crisis situations.

REFERENCES

1. Anaesthesia 55 p63-183; 2000