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Postpartum hemorrhage device preferences among midwifery and physician trainees

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Abstract

Background

Postpartum hemorrhage (PPH) contributes substantially to maternal morbidity and mortality globally. First–line treatment includes uterotonics, uterine massage, and fluid resuscitation. Uterine balloon tamponade is recommended for uterine atony refractory to first-line treatment. International guidelines limit the context of tamponade use to settings where surgical intervention and blood products are readily available, not accounting for disparities in access to such resources at birthing centers. Further evaluation of PPH tamponade devices for utilization in multiple care settings is needed.

We conducted a feasibility study of uterine tamponade devices among midwifery and medical students.

Methods

We recruited 42 medical and midwifery students at Oregon Health & Science University. Participants received a short didactic on PPH and manufacturer instructions for three devices: Bakri® Postpartum Balloon, CELOX™ PPH Uterine Hemostatic Tamponade, and XSTAT™ Mini-Sponge Tamponade Device. Participants were timed during placement and removal of each device on a Mama-U high-fidelity uterine model.

Device ranking by training type was assessed. We performed descriptive statistics on prior experience and performance. We assessed differences between devices to account for the fact that each participant worked with all three devices.

Results

In total, 40 participants completed the study; 14 midwifery and 26 medical students. 95% of participants had no prior training or experience placing a tamponade device.

Overall, XSTAT™ was rated significantly easier to use (mean: 2.08, SD: 1.38), compared to CELOX™ (mean: 3.5, SD: 1.52) and Bakri® (mean: 5.03, SD: 2.03). Among all participants, 90% preferred XSTAT™, 7.5% preferred CELOX™, and 2.5% preferred Bakri® for their practice. 100% of midwifery students preferred XSTAT™ compared to 84.6% of medical students.

Discussion

Understanding feasibility and acceptability of use is a key element in the expansion of a vital medical device. Our study gains insight into PPH uterine tamponade device preferences among trainees with limited device bias, providing useful information for global implementation.