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Empowering midwives with arterial-line management

J Dickerson, C Rowan, P Hartley, O Licari
Department of Anaesthetics, Queen Elizabeth University Hospital, Glasgow, UK

Introduction

Arterial pulse waveform analysis provides beat-to-beat monitoring of maternal cardiac output and is increasingly utilised in the assessment and management of the obstetric patient. Common reasons for siting arterial lines in labour ward include pre-eclampsia, haemorrhage, obesity or cardiac disease. Such patients would ordinarily be managed in a high dependence or critical care area, and indeed 18% of women cared for in our obstetric high dependency unit required invasive arterial monitoring. We have observed varying degrees of comfort amongst midwifery staff on managing arterial-lines and sought to formally assess and address this.

Methods

An anonymous survey was sent to 67 midwives based in the Queen Elizabeth University Hospital Maternity Unit across a two-week period in November 2020. We asked five questions regarding confidence in handling of arterial lines (using a Likert-type scale) and two in response to a series of proposed interventions.

After identifying a service need, we designed an educational poster (Figure 1) and distributed this both in visible locations on labour ward and online. We followed this with an educational package and drop-in sessions run by anaesthetic staff. We repeated the survey in January 2021 to determine any effectiveness of our education package.

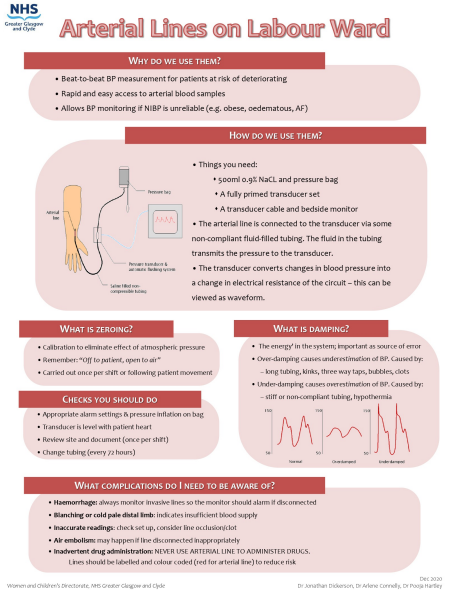


Figure 1. Poster developed as an aide-mémoire on labour ward

Results

46% (31) of eligible midwives completed our initial survey. Following a poster campaign and short drop-in sessions ran by the authors, 67% (24) of midwives completed a follow-up survey. 92% (22) had reviewed our poster and all found it useful. 18 midwives attended a drop-in session, all of whom found it useful. All assessed area of arterial line care improved following intervention (see Figure 2).

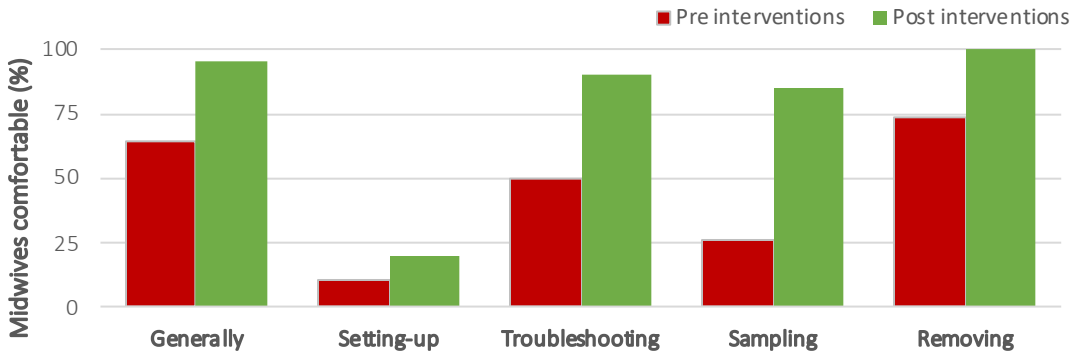


Figure 2. Self-reported comfort levels at various elements of arterial line care before and after teaching sessions.

Discussion

Arterial lines are integral in the management of critically ill obstetric patients and demand high acuity nursing care. The Enhanced Maternal Care Guidelines outline a competency framework for cardiovascular management which includes comprehensive statements regarding arterial line management.[1] With the low frequency of individual midwives encountering a patient with an arterial line, a degree of attrition of skills is likely.

Our goal is to empower midwives with a variety of educational resources in order to build on and maintain their skills and confidence in this area. Our poster has been exceptionally well received and has been circulated to all midwives, placed in high visibility areas in labour ward and within the midwifery reference handbook in the high dependency unit. The educational sessions, although felt to be productive by those who attended, were challenging to coordinate within the context of the COVID-19 pandemic and clinical pressures. As a result, we have shifted to a virtual platform and plan to cascade these sessions to more staff throughout the year.

We hope to capitalise on this modest improvement in midwifery confidence levels in arterial line management, but also to continue to foster our multi-disciplinary communication and working relationship between anaesthetic and obstetric teams.

References

1. Royal College of Anaesthetists. Care of the Critically Ill Woman in Childbirth; Enhanced Maternal Care . London, UK: RCOA; 2018