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Obstetric admissions to the intensive care unit: focus on major haemorrhage and role of the high dependency unit

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Introduction

National studies show 1 in 450 -700 women are admitted to ICU during pregnancy and the puerperium in the UK, mostly due to post -partum haemorrhage (PPH).[1,2] Delivering critical care in a suitable environment is fundamental as parturient recovery capacity may be higher than the general critical care population.[3] We aimed to define the cohort of obstetric patients admitted to our ICU and the therapeutic interventions required, with a focus on admissions following PPH. Subsequently, to explore anaesthetists decision-making process when referring PPH patients to the ICU.

Methods

Obstetric admissions (pregnant or within 6-weeks post-partum) to ICU and obstetric HDU, between 2015-2019, were identified. Data was collected using WardWatcher, CareVue and Clinical Portal. Statistical analysis used RStudio to match patients admitted to ICU/HDU following PPH. A survey explored decision-making amongst consultant anaesthetists when referring PPH patients to ICU.

Results

Seventy-one obstetric patients were admitted to ICU over the 5 -year study period. Postnatal admissions outnumbered antenatal (83% vs 17%). The most common admission diagnoses were: PPH (41%) and sepsis (26%). 69% were admitted following caesarean delivery. Median length of stay was 1.1 (0.8-1.8 [0.2-25.6]) decimal days. 59% of all admissions and 69% of PPH admissions received no level-3 interventions (**table 1**). No deaths were recorded. ICU admissions had greater blood loss and blood products transfused ($p<0.001$) and were more likely to have undergone hysterectomy ($p=0.011$). 92% of obstetric anaesthetists stated a key reason for ICU referral was a perceived lack of suitable nursing skills/resource in obstetric HDU, even if no level 3 interventions were required.

Table 1: Number (%) receiving level 3 interventions

	Overall	PPH
No level 3 intervention	42 (59)	18 (69)
Ventilated	23 (32)	6 (23)
Vasopressors	4 (6)	2 (8)
Dialysis	2 (3)	0

Discussion

Most obstetric patients admitted to ICU do not require level 3 interventions, however, access to skilled critical care nursing may necessitate transfer. Most obstetric ICU admissions are postnatal, following PPH, have a short length of stay and good outcomes. There may be novel solutions to address the perceived skills gap to reduce ICU admissions for those not requiring level 3 interventions, allowing more women to remain in an obstetric environment. These include; ICU nurses caring for women within obstetric HDU or utilising main theatres recovery, where trained recovery nurses are familiar with managing complex patients.

References

1. Jardine J, NMPA Project Team (2019) Maternity Admissions to Intensive Care in England, Wales and Scotland in 2015/16: A Report from the National Maternity and Perinatal Audit. Royal College of Anaesthetists

2.Lennox C, Marr L (2014) Scottish Confidential Audit of Severe Maternal Morbidity: 10th Annual Report. Healthcare Improvement Scotland

3.The Maternal Critical Care Working Group (2011) Providing equity of critical and maternity care for the critically ill pregnant or recently pregnant woman. Royal College of Anaesthetists