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Managing maternal anaemia at Royal Cornwall Hospital: Iterative improvements year on year

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Introduction

Maternal anaemia remains common despite associations with adverse maternal and foetal outcomes.[1] Caesarean section is major surgery associated with 'moderate-to-high' blood loss (440 - 800ml). Recently conventional definitions of anaemia (<110g/l) have been questioned and a higher haemoglobin threshold (120g/l) suggested.[2] This is likely to benefit a population at risk of significant blood loss.

Methods

In 2019 we audited routine haemoglobin screening and management for women who underwent elective caesarean section.

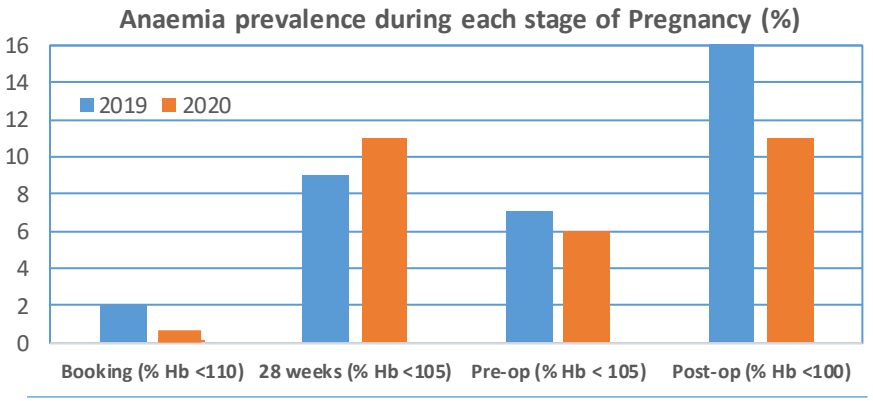
- We verified that routine blood screening had occurred at four key stages:
  - Booking
  - 28 week
  - Pre-operative assessment (3-5 days prior to surgery)
  - Post op
- We assessed management and follow up against trust guidelines.

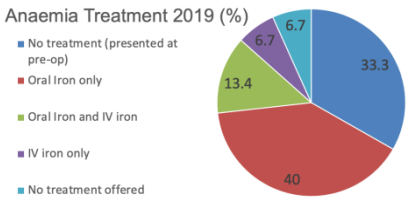
Subsequently changes were made to our Anaemia in Pregnancy Guideline. Treatment flow charts were simplified and the intravenous iron dose was maximised to 1000mg.

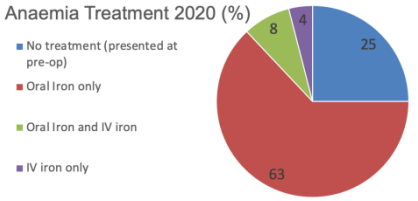
The audit was repeated in 2020.

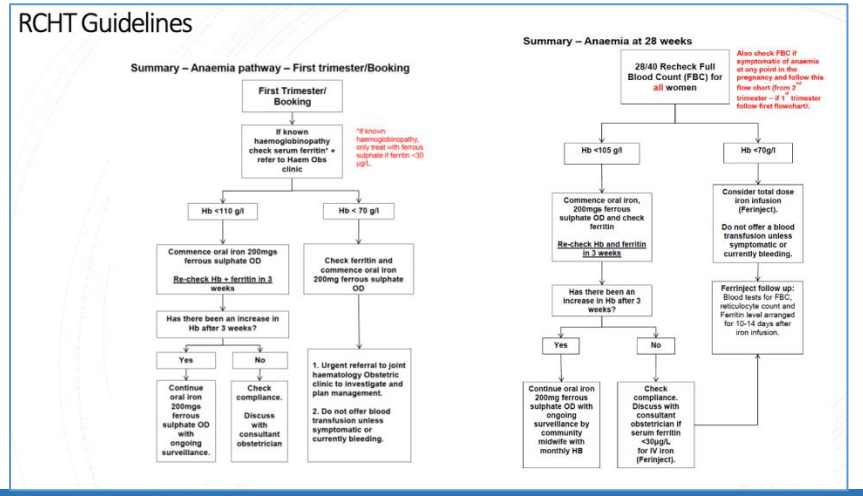
- In addition to routine screening, we expanded the audit to include patients whose anaemia had been detected incidentally or due to targeted testing based on symptoms.

Data was collected for 100 women in 2019 and 135 in 2020.









Results

In both years

- Treatment rates were high for those presenting before pre-op (99% in 2019 and 100% in 2020).
- Follow up rates from anaemia detected at booking in both years were 100%.

Improvements in 2020:

1. Routine Screening- 12 missed blood tests in 2019 compared to only 3 in 2020, despite the extra challenges of Covid-19!
2. Follow up – for patients detected at 28 weeks (and beyond) increased from 78% completion to 86% for the second audit.
3. Management failure rate- the percentage of patients with anaemia persisting through to pre-operative assessment fell from 18% to 6%.

Issues:

- Despite adherence to screening protocols, almost a third of anaemic patients in both years were not detected until pre-operative assessment.
- Generally these patients had borderline haemoglobin at 28 weeks with a significant drop of 10-20g/L over the course of the third trimester.

Discussion

Despite improvements between 2019 and 2020, anaemia still persists unacceptably in the elective caesarean section population despite readily available treatment. A third of women developed anaemia later in pregnancy despite following guidelines. This supports targeting a higher haemoglobin (120g/l) throughout pregnancy to mitigate for anaemia worsening towards term.

References

1. Pavord S, Daru J, Prasannan N et al. UK guidelines on the management of iron deficiency in pregnancy. Br J Haematology 2020;188:819-830.
2. Ferguson MT, Dennis AT. Defining peri-operative anaemia in pregnant women - challenging the status quo. Anaesthesia 2019;74:237-245.