PATIENT BLOOD MANAGEMENT: IDENTIFYING PRE-OPERATIVE ANAEMIA

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Introduction

- Pre-operative anaemia rates are often high in the orthopaedic population. Previous audit data collected in 2010 at RNOH found 12-15% patients presenting for primary joint arthroplasty anaemic.
- Pre-operative anaemia is predictive of Allogenic Blood Transfusion (ABT) requirements. Hb <11gdL^{-1} pre-operatively are strongly predictive of transfusion in orthopaedic surgery [1]. Allogenic blood transfusion is associated with worse outcomes in orthopaedic surgery.
- Pre-operative anaemia has been shown in both prospective and retrospective studies to be an independent risk factor for morbidity and mortality.
- Patient Blood Management (PBM) pioneered in Western Australia as a program to optimise, conserve blood reserves and manage anaemia have been shown to reduce the rate of allogenic blood transfusion in orthopaedic surgery [2].
- NHS Blood and Transfusion currently recommends reversible pre-operative anaemia be corrected prior to surgery [3]. Deferral of surgery should be considered.
- At RHOH testing for anaemia takes place usually 4-6 weeks prior to surgery at pre-assessment clinic (PAC).
- Patients identified pre-operatively as anaemic at PAC are referred to their GP for further investigation and/or treatment with oral iron supplementation.

Methods

- We conducted a retrospective audit of 100 consecutive patients undergoing major orthopaedic surgery at RNOH during August 2012.
- Using laboratory records Group and Save samples were matched to pre-operative Haemoglobin (Hb) values.
- We identified what proportion of this population scheduled for elective surgery had anaemia as defined by World Health Organisation criteria; haemogloblin Hb <12gdL^{-1} for females, <13gdL^{-1} for males.
- Further analysis of the patient records searched for the need for ABT during the peri-operative period.

Results

- A total of 379 surgical procedures was carried out in August 2012. The sample size of 100 approximates to 7 days operating. Following exclusions 90 samples were analysed.
- 16/52 (31%) females were anaemic. 12/38 (32%) males were anaemic.
- Hb range 8.5-15.6 gdL $^{-1}$ females, 8.6-18.1gdL^{-1} males (Figure 1)
- 6/52 (12%) females and 2/38 (39%) males were not seen in pre-assessment clinic pre-operatively.
- Only 18/46 (39%) females and 17/36 (47%) males had PAC bloods testing greater than 30 days prior to surgery.

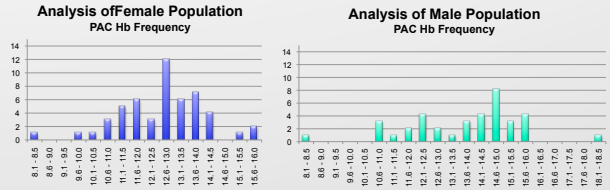

Figure 1. Haemoglobin measurements on PAC blood samples in female and male populations

Discussion

- We have a significant rate of over 30% pre-operative anaemia in our adult surgical population. Anaemia is equally common in our female and male population. Most patients found to be anaemic might be classified with only a mild form as the majority had an Hb>11gdL^{-1}.
- Iron Deficiency Anaemia (IDA) is often the most prevalent form of anaemia. Pre-operative blood tests should always therefore include haematinics, to identify IDA and improve efficacy of pre-operative anaemia treatment. Anaemia may be resistant to standard treatment with oral iron therapy alone, particularly in a limited time frame.
- Patient Blood Management is built around 3 pillars of care aiming to reduce need for transfusion. Anaemia detection, diagnosis and correction is cornerstone to the pre-operative phase in the 1st pillar.

Figure 2. Three Pillars of multi-disciplinary multi-modal PBM

- Pre-assessment clinic should allow sufficient time for treatment of anaemia. Timing of PAC has presented logistical problems in Patient Blood Management.
- Further limitations to treatment of anaemia may occur at RNOH because as a specialist tertiary referral hospital we receive patients with advanced disease from throughout the UK and abroad, and co-ordinating services and expediting treatment raises additional challenges.
- Peri-operative intravenous iron therapy has gained popularity for the treatment of anaemias. This may be a useful consideration in these patients who suffer a co-morbidity that decreases the efficacy of oral iron therapy, or patients presenting for more urgent orthopaedic surgery such as cancer treatment. Further study at our centre is needed to evaluate this treatment

References

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