The Prevalence of Iron Deficiency Anaemia, and Association with Peri-

Operative Transfusion Rates in Patients Undergoing Resections of Bone and Soft Tissue Sarcomas and Metastatic Bone Disease

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Background: Peri-operative anaemia is associated with increased risks of post-operative complications, blood transfusion and mortality. Correction of anaemia with peri-operative IV iron supplementation has been shown to reduce transfusion requirements and improve outcomes in other surgical specialties.

Existing work:

Elective arthroplasty

 Pre-op IV iron is safe and effective for correction of anaemia, reduction of transfusion rates and length of stay (2)

Colorectal cancer:

- High prevalence of IDA, independently associated with increased post-operative complication rate (3).
 - IV iron therapy decreases transfusion rate and length of stay (4,5)

The ESMO guideline (6) states:

- IV iron is more effective for Hb optimisation as vs. oral iron therapy
- Iron therapy reduces the number of patients receiving blood

Aims:

- Phase 1: Identify the need for transfusion and associated morbidity in our patient group.
- Phase 2: Determine the prevalence of iron deficiency anaemia (IDA) and assess association of IDA with peri-operative transfusion requirements and complication rates.

Hypothesis: By identifying the presence of occult IDA, and impact on peri-operative transfusion requirements we can target these patients for peri-operative optimization.

Methods:

- Multi-phase retrospective studies of all resections of bone and soft tissue sarcomas, as well as metastatic bone disease at a single tertiary referral centre

Data collected on:

- Patient Demographics: diagnosis, metastases, pre-op chemo/radiotherapy, anti-coagulation, co-morbidities
- Surgical factors: procedure, TXA, revision surgery, infection
- Haemoglobin: Pre- and post-operatively
- Transfusion requirement & Oral Iron supplementation on discharge

Following Phase 1 results, routine pre-op Iron studies and Phase 2 of data collection to analyse association of Iron studies with transfusion requirement.

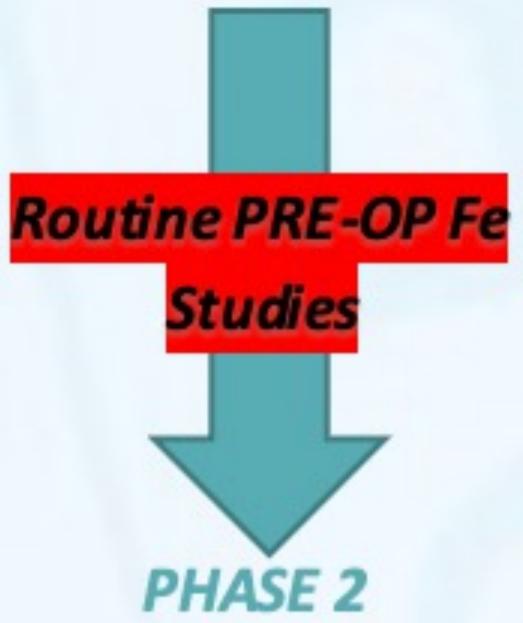
Results:

PHASE 1

1st January – 1st

September 2020

127 Patients



PHASE 2

1st November 2020

- 1st July 2021

87 Patients

Proposed Next
Step

PHASE 3
Routine peri-op IV
Fe for IDA patients

Demographics: Mean age: 57 years, 80 M: 47 F
Mean Hb(g/L): Pre-op: 127 → Post-op: 107

- 34 patients (27%) transfused: Mean 2.4 units/patient
 - 5-fold increase wound complications (26% vs 5.3%)
 - Doubled Mean length of stay: 20.2 days (vs 9.6)
 - Required in 35% of bone sarcoma resections and 67% hemipelvectomies
 - 7.5% of patients NOT transfused discharged on oral Iron

PHASE 1 Conclusion: High burden transfusion & associated complications in this group of patients

Demographics: Mean age: 57 years, 45 M: 42 F
Mean Hb(g/L): Pre-op: 126 → Post-op: 96

Mean Serum Iron (ug/dl): 9.8 (normal range 11.6-31.3)

- 30 patients (34%) transfused: Mean 2.3 units/patient
 - o 83% iron deficient (mean serum iron 6.75ug/dl)
 - Despite pre-op Hb >120, 12 patients required transfusion
 - 10/12 had occult Iron deficiency
- Only 11.5% non-Iron deficient patients transfused
- 53 patients (61%) Iron deficient
 - 52% IDA required transfusion

PHASE 2 Conclusion: Occult IDA is a strong predictor of transfusion. Only 2.3% of patients with Hb>120 and normal serum iron requiring peri-operative transfusion

Proposed Next Phase: pre-op Iron Studies and perioperative IV Iron transfusion in all Iron Deficient Patient and assess implication on blood transfusion rates.



Conclusions:

- Peri-operative anaemia is a significant problem in our patient cohort. We have identified that iron deficiency is a significant risk factor for requiring peri-operative transfusion.
- Targeted optimisation prior to surgery could potentially reduce the transfusion requirements, associated morbidity, post-operative complications and length of stay.