

The Manchester Surgical Outcomes Project: Prevalence of Pre Operative Anaemia and Peri Operative Red Cell Transfusion Rates

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Background: Preoperative anaemia is a common problem¹. It is independently associated with an increased risk of 30 day morbidity and mortality² and potentially treatable.

The Manchester Surgical Outcomes Project (MSOP) is a prospective observational cohort study of patients admitted to critical care following elective surgery. It is a Manchester Royal Infirmary (MRI) initiative to continuously collect peri operative morbidity data, enabling targeted quality improvement work. MSOP aimed to ascertain the prevalence of pre op anaemia, proportion of microcytosis and the rate of post operative red cell transfusion.

Methods: Demographic data, preoperative haemoglobin concentrations, mean corpuscular volume (MCV), and number of units of red cells transfused during hospital admission were collected on patients who underwent surgery between September 2014 and May 2015. Inclusion criteria were adult patients undergoing elective non-cardiac, non-orthopaedic surgery who were admitted to critical care following surgery. Anaemia was defined using the World Health Organisation criteria. Microcytosis was defined as an MCV < 80 fl.

Results: 488 patients were included for analysis. 58% (n=282) male; 42% (n=206) female. 80% (n=391) of operations were for cancer.

Overall 39% (n=191) were anaemic pre operatively. 14% (n=27) of anaemics were microcytic.

The surgical specialties with highest prevalence of anaemia were upper GI (56%, n=24) and colorectal (43%, n=23). Hepatobiliary surgery constituted the largest surgical specialty represented (37%, n=180).

The overall mean average number of units of red cells transfused during the hospital admission was 1.47. The mean average red cell transfusion rate increased with severity of anaemia from 1.0 unit per non anaemic patient to 6.0 units per severely anaemic patient.

Conclusion: We found a prevalence of preoperative anaemia at the higher end of that found in other studies¹.

The data is limited by the absence of haematologic studies. MCV is used as a pragmatic surrogate marker for iron deficiency anaemia. It is likely that the true prevalence of iron deficiency is greater than 14%.

Management of pre operative anaemia has been challenging at MRI due to barriers such as the limited timeframe available for pre operative optimisation prior to cancer surgery.

We have used this data to support the development and implementation of a pre operative anaemia project in pilot specialties: colorectal, hepatobiliary and upper GI surgery. We are aiming for early identification, assessment and management of anaemia including the use of intravenous iron when indicated.

References

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2. Musallam KM, Tamim HM, Richards T, et al. Preoperative anaemia and postoperative outcomes in on-cardiac surgery: a retrospective cohort study. *The Lancet* 2011 378(9800):1396-1407.