

# Anaemia and Patient Blood Management in patients having neck dissections or free flaps for Head and Neck cancer

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## Introduction

Head and Neck Cancer (HNC) patients commonly present pre-operatively with haematological abnormalities. Due to its multifactorial nature and association with dysphagia, poor diet and lifestyle factors, patients most frequently present with iron deficiency anaemia.<sup>1</sup> The World Health Organisation defines anaemia as Hb <130 g/L in men older than 15 years and <120 g/L in non-pregnant women older than 15 years.<sup>2</sup>

Symptoms of anaemia have a profound impact on a patient's quality of life, contributing to poorer wound healing, fatigue and delayed recovery time.<sup>3</sup> Following tumour resection, neck dissection and microvascular free flap reconstruction, intra-operative and post-operative anaemia are common due to blood loss and haemodilution effects.

There are documented risks of blood transfusion, resulting in avoidance if possible.<sup>4</sup> Notably, HNC patients receiving three or more units following free tissue reconstruction are reported as having significantly worse prognosis (survival, wound infection).<sup>5</sup>

National best-practice guidelines are available to guide patient blood management and ensure the provision of high quality patient care.

## Standard

NICE Guideline Quality Statements for Blood Transfusion were used as the standard in this audit<sup>6</sup>:

**QS1)** People with iron-deficiency anaemia who are having surgery are offered iron supplementation before and after surgery.

**QS 2)** Adults who are having surgery and expected to have moderate blood loss are offered tranexamic acid.

**QS 3)** People are clinically reassessed and have their haemoglobin levels checked after each unit of red blood cells they receive, unless they are bleeding or are on a chronic transfusion programme.

## Method

A retrospective analysis of patients having neck dissection or microvascular free tissue reconstruction for HNC at Aintree Hospital Regional Maxillofacial Unit. All patients from October 2016 to September 2017 were included, there was no exclusion criteria. Cases were identified from theatre lists, and electronic patient records used to access operation notes, anaesthetic charts and blood results. The project was approved by the Clinical Audit Department at Aintree University Hospital.

**131** consecutive patients were included: **65** soft tissue free flaps, **34** hard tissue free flaps and **32** neck dissection only.

## Results

### ➤ Neck Dissection Group:

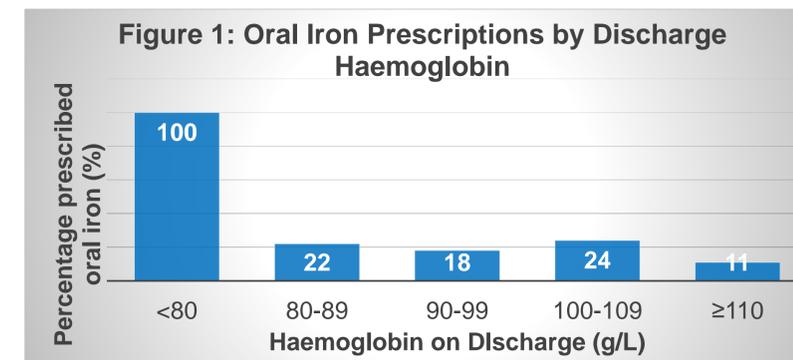
**4% (1/28)** were anaemic pre-operatively and **42% (11/26)** on discharge. No blood transfusion required, no patients received or were discharged on iron.

### ➤ Free Flap Group:

PRE-OPERATIVE: 3-4 weeks before surgery, **19% (16/85)** were anaemic. ADMISSION: **47% (4/30)** of hard free-flap and **27% (17/62)** of soft free-flap patients were anaemic.

INTRA-OPERATIVE: Hb levels fell by **30 g/L** on average from admission to during the operation. **98% (82/84)** were anaemic.

POST-OPERATIVE: **100% (99/99)** were anaemic and **23% (23/98)** were prescribed oral iron on discharge.



Haemoglobin levels were reviewed at the next appointment for **18% (16/90)**

NICE Standard	Key Audit Findings
QS1	No pre-operative iron prescribed. No post operative IV iron prescribed. <b>23% (23/98)</b> prescribed oral iron on discharge.
QS2	<b>4</b> patients received tranexamic acid intra-operatively.
QS3	<b>41</b> red blood cell transfusions ( <b>61 units</b> ) received by <b>26/99</b> patients. Hb checks after each RBC unit were done for <b>79% (31/39)</b> of transfusions. One-third ( <b>8/24</b> ) of patients had a transfusion episode without checks, 2 with surgical complications.

Table 1: Key Audit findings comparing to NICE Quality Standards for Blood Transfusion

## Discussion

The findings of this audit have highlighted potential deficits in patient blood management and have allowed opportunities for reflection on how to improve. The average time from pre-operative assessment to operation was approximately three weeks, during which haemoglobin continues to fall (on average 7-8 g/L). There is opportunity to administer IV iron in this period. Tranexamic acid (TXA) administration at time of tumour ablation has so far been safe to use and has not comprised flap success.

It is important to optimise HNC patients, as many will embark on radiotherapy or chemotherapy post-operatively. Anaemia has been found to be an independent significant prognostic factor in survival.<sup>7</sup>

## Proposed Management of HNC Patients

### ➤ Pre-operative

- Following treatment planning, early pre-operative bloods to identify patients with iron deficiency anaemia. Consider the use of HemoCue for rapid identification of anaemia.
- If Hb<120 consider administration of IV iron.
- Re-check Hb two weeks later, assess need for second treatment IV iron.

### ➤ Intra-operative

- Optimal surgical technique
- Hypotensive anaesthesia
- Regular assessment of blood loss and Hb checks
- 1g TxA prior to tumour resection
- Consider cell salvage
- Single unit transfusion

### ➤ Post-operative

- Haematinic checks on ward. At day 2/3 post-operatively, consider IV iron if Hb<120g/L.
- Check Hb prior to discharge and at first consultation post-discharge.

## References

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