Anaemia management in hospital patients: a UK perspective

Anaemia is common in general practice and community care, as well as in medical and surgical inpatients. A systematic review that collected data on over 85 000 patients from 34 studies estimated the prevalence of anaemia in the over-65 year age group to be 12% in the community, compared to 40% in hospital medicine (Gaskell et al, 2008). In surgery, the prevalence of preoperative anaemia is up to 75% depending on the procedure studied (Shander et al, 2004).

Anaemia is a significant risk factor for patients to require allogeneic blood transfusion as well as an independent predictor of morbidity and mortality in sophisticated analyses of large data sets (Musallam et al, 2011). Musallam and colleagues showed that even mild anaemia (equivalent to a haemoglobin concentration >10 g/dl) was associated with relative risk increases of over one third for both mortality and morbidity.

Patient blood management is an emerging concept where the factors that may predispose patients to needing blood transfusion are identified and addressed long before transfusion may even be considered. Patient blood management has been described as a 'three-pillar approach':

1. Timely management of pre-existing anaemia
2. Limiting the red cell mass lost as a result of interventions
3. Optimizing the patient's physiological reserve to cope with anaemia and using evidence-based restrictive transfusion triggers.

Anaemia management and patient blood management thus impact on two distinct problems:

- The need to control demand for donated blood
- Potential outcome improvement for patients.

This editorial considers the rationale for timely implementation of anaemia management strategies in hospital patients to address the above two problems. It also refers the reader to national and international recommendations.

The demand for donated blood

Sequential regional audits showed a steady decline in the use of blood for surgical patients over the period 1999–2009 (Wallis et al, 2009). The authors suggested that a combination of reduced volume of cardiac surgery and increased implementation of patient blood management strategies in elective surgery may have contributed. The surgical specialty with the greatest use of blood transfusion in absolute terms was orthopaedics. No decrease in the demand for blood was seen in medicine or obstetrics and gynaecology in the same audits. The stable demand from medicine, combined with increasing numbers of surgical procedures performed in older patients (e.g. major orthopaedics), has the potential to reverse the downward trend in demand for blood.

There also remains the problem of guaranteeing the security of the national blood supply, which is by definition a limited resource. The donor population is older than the population as a whole and donation is decreasing among the young (NHS Blood and Transplant, 2012a). In combination with the impact of screening for emerging infective diseases and potential pandemics (Spahn et al, 2008), this may make the blood supply precarious in future. Since transfusion is potentially life-saving (and indeed the only treatment option) in certain conditions, e.g. massive haemorrhage or marrow failure, it makes logical sense to limit the demand in conditions where an alternative to blood transfusion does exist. Demand reduction therefore has important public health implications.

Blood donation is sometimes sought on the basis that blood is only used where the medical correction of anaemia is impossible (NHS Blood and Transplant, 2012b). It is thus arguable that anaemia management and patient blood management also have an ethical dimension, that of acting responsibly with donors' altruism.

Potential benefits for patients

Serious complications directly attributable to transfusion are rare, but nevertheless continue to occur. In this issue of *BJHM*, Richards (p. 571) describes the emerging body of evidence that a hitherto underappreciated relationship also exists between anaemia, seemingly uncomplicated transfusion and poor patient outcome. Although this three-way relationship is associative and complex, some authors have argued that its strength and consistency means that causation may be assumed (Isbister et al, 2011).

Anaemia management programmes have been shown to lead to improved outcomes in observational (Kotzé et al, 2012) and randomized evaluations in orthopaedic surgery (Wong et al, 2007) and heart failure management (Anker et al, 2009). It may also generate cost savings for NHS trusts (Spahn et al, 2012).

National and international recommendations

The Department of Health has instructed NHS trusts to implement strategies to conserve blood and use alternatives in the 'Better Blood Transfusion' documents (Department of Health, 2007). The World Health Organization, at the 63rd World Health Assembly, also identified patient blood management as an emerging global health-care need with implications for the reliability, safety and equity of access to the global blood supply. After a structured systematic review process, the Australian National Blood Service recommended strongly that programmatic approaches to patient blood management be implemented, including anaemia management (National Blood Authority Australia, 2011). A similar initiative is being promoted by the American Association of Blood Banks in the United States.

The UK Department of Health launched a national patient blood management initiative in June 2012 (National Blood Transfusion Committee, 2012). The aim is to build on the success of the 'Better Blood Transfusion' initiative by supporting trusts in implementing comprehensive strategies to treat anaemia and minimize recourse to donated blood. The Department of Health, National Blood Transfusion Committee and NHS Blood and Transplant are currently considering strategies for how this may be done in practice, and plan to issue recommendations in early 2013.

Conclusions

Anaemia should be viewed as more than an abnormal laboratory value; it is rather a modifiable risk factor for poor outcome, even when mild and asymptomatic. It is also a modifiable risk factor for requiring blood transfusion. Anaemia management (and other patient blood management strategies) have potential public health as well as direct patient benefits. The issue is likely to have a higher public health profile in the near future. BJHM

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KEY POINTS

- Anaemia should be viewed as more than an abnormal laboratory value.
- Anaemia is predictive of poor outcome and the need for allogeneic transfusion in medical as well as surgical patients, even when it is mild and asymptomatic.
- Timely treatment of anaemia in all inpatients is likely to reduce demand for donated blood – this is important for public health reasons.
- Anaemia management strategies have also been shown to provide direct patient benefits, as well as reductions in health-care costs.

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