BLOOD TRANSFUSIONS 1: HOW TO MONITOR FOR ADVERSE REACTIONS

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This two-part unit explores the monitoring of patients receiving a blood transfusion. This first part outlines the importance of making careful checks before the transfusion, as well as that of monitoring a patient receiving a transfusion.

During the blood transfusion process, patient observations typically include recording vital signs – temperature, pulse and blood pressure. The purpose of undertaking these observations is to ensure that an acute transfusion reaction can be recognised early and dealt with in a timely manner, thereby helping to reduce or prevent transfusion-associated morbidity or mortality.

However, there is little evidence on how frequently these vital signs should be measured. In a systematic review of vital signs in hospital patients, Evans et al (2001) reported that observational practices were not evidence-based. The British Committee for Standards in Haematology (BCSH) also comments that it is not clear what the optimum type and frequency of observations for transfusion should be (BCSH, 1999). In addition, national and international audits of transfusion practice have demonstrated wide variations in monitoring practices (Royal College of Physicians and National Blood Service, 2005; Gray et al, 2003; Evans et al, 2001).

A national comparative audit of bedside transfusion practice in 2005 found that, of 8,000 transfusions, 15% had no record of vital signs having been performed during the transfusion and 34% had no record of observations within the first 30 minutes, which is the period when adverse reactions would be most likely to occur (RCP and NBS, 2005).

ERRORS IN TRANSFUSION

Over the past few years the Serious Hazards of Transfusion Scheme (SHOT) has focused on improving the safety of blood administration at the bedside, looking specifically at sampling, collection and administration. Since 1996 the most common SHOT report is the incorrect blood component transfused (IBCT), and all of these cases are preventable.

In the 2005 SHOT report (Stainsby et al, 2005), 485 (79%) reports of IBCT were reported, which resulted in two patients dying and four patients experiencing major morbidity. Of these IBCT incidents reported, the most common error (that could have prevented these outcomes) was failure to carry out the bedside check.

Before any blood is transfused, it is vital that the correct patient identification procedure has taken place using the patient’s wristband. However, it should also be noted that not all blood transfusion reactions can be avoided.

Stainsby et al (2005) reported 121 immunological reactions to blood components. It is, therefore, essential that nurses are vigilant while monitoring patients during the transfusion process so any change to their condition can be detected and managed early.

Nurses must understand the implications of any changes in patients’ signs and symptoms while receiving a blood transfusion. The purpose of undertaking routine observations on patients receiving a blood transfusion is to enable prompt recognition and timely intervention should an adverse event occur. Sazama et al (2000) emphasised that patients should be closely monitored, especially at the beginning of the transfusion.

In addition, in a review of transfusion fatalities, Mummet and Tourault (1994) concluded that 50% of these fatalities might have been avoided if several steps had been taken to ensure earlier recognition and action. This has also been endorsed by Fitzpatrick and Fitzpatrick (2001).

MONITORING TECHNIQUES

As indicated, the early recognition and management of adverse effects of transfusion is essential to optimise treatment and reduce patient morbidity and mortality. It is crucial that healthcare practitioners monitor patients receiving transfusion and are able to recognise and act on early signs and symptoms of an adverse event.

Current literature shows little evidence...
to indicate the optimal manner and frequency of recording vital signs to ensure detection of serious illness or adverse effects of transfusion. A survey reported by Burroughs and Hoffbrand (1990) also indicated that recording vital signs had become a routine procedure unrelated to perceived individual patient needs. Zeitz and McCutcheon (2003) reported: ‘It appears the policies that nurses use to determine their practice are, in the most part, determined by clinical experience and exist to protect the organisation rather than improve patient outcome’.

The most severe adverse effects of transfusion, such as haemolytic reaction and anaphylactic reaction, will usually occur within the first 15 minutes of starting transfusion. In 1999 the BCSH issued guidelines for the administration of blood and blood components and the management of patients who had had a blood transfusion, which suggest those vital signs that should be recorded and how often (see box, left).

VISUAL OBSERVATIONS
While the monitoring of vital signs is important, the benefit of visual observation of patients must not be overlooked. Whedon (1995) emphasised the importance of general clinical observation, reporting that patients’ symptoms are more likely to be experienced before there is any change in their vital signs.

Castledine (2006) advised that practitioners should involve patients in their clinical care. Patients may be the first to be aware of any adverse effects of the transfusion. Nurses should empower patients by ensuring that they are well informed of the potential risks of having the transfusion and by advising them to report any adverse effects (Atterbury and Wilkinson, 2000). It is, therefore, essential that patients who are undergoing a transfusion are in an area where they can be easily observed and can attract nurses’ attention if needed.

OTHER SAFETY ISSUES
In reviewing out-of-hours blood transfusions, Tinegate et al (2007) suggested there could be additional risk when performing blood transfusions outside of routine hours. In their study, 28% of blood transfusions occurred outside of routine hours. SHOT data has shown that 37% of transfusion incidents occur during this time.

To ensure the safe and appropriate monitoring of patients receiving blood transfusion and early detection of adverse effects, it is important that all healthcare staff monitoring patients should ensure:
- Recommended and appropriate vital signs are observed, assessed, recorded and acted on as necessary;
- Patients are treated in an environment where they can be easily observed visually;
- Routine transfusions, outside of routine hours, are avoided;
- Patients are informed of the risks of transfusion and symptoms of adverse effects, and asked to report any adverse effects they feel to healthcare staff;
- Practitioners undertaking transfusion must be able to recognise the early signs and symptoms of adverse effects of transfusion and act appropriately.

CONCLUSION
The SHOT reports have shown that the risk to patients of receiving the incorrect blood component is real and, although transfusion reactions are fortunately quite rare, clinical staff should always remain vigilant.

The prompt detection of signs and symptoms and early action to manage an adverse event or reaction to transfusion can help prevent morbidity and mortality. To this end, it is imperative that practitioners:
- Regularly monitor vital signs;
- Ensure patients are transfused where and when they can be easily observed;
- Empower patients who are receiving a blood transfusion.

Until further evidence is available to indicate the optimal timing of blood transfusion observations, it is essential that vital signs are monitored in accordance with the BCSH administration guidelines (BCSH, 1999).

Part 2 of this unit, on causes of transfusion reactions and their clinical presentation, will appear in next week’s issue.