

### **Judicious use of blood**

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The judicious or appropriate clinical use of blood and blood products means the transfusion of safe blood products only to manage a condition leading to significant morbidity or mortality that cannot be avoided or managed effectively by other means.<sup>1</sup> It is very necessary that blood should be safe and transfusion should be prescribed only when the benefits to the patient are likely to outweigh the risks.

Provision of safe blood requires a series of steps which begin with the selection of appropriate donors through structured donor interview and health check, appropriate laboratory support for testing of donor blood for transfusion transmitted infections, compatibility testing as well as judicious clinical use of blood and its derivatives. The strength of the blood safety depends on the strength of the link between each step. Efforts should be made that all are given equal importance to ensure a safe blood transfusion.

In Pakistan majority of blood donation is from family replacement donors and studies conducted showed 6 to 7 percent seroprevalence for hepatitis B and C in family blood donors as compared to 1 to 2 percent in volunteer blood donors<sup>2-4</sup> negating the usual perception that directed donation may be safer. Therefore healthy voluntary blood donation culture is immensely needed for provision of safe blood supply in our society. Furthermore, pre transfusion events including sample collection, blood grouping, cross matching procedures, component preparation and storage as well as positive identification of the patient should be ensured. Care to the patient during and after transfusion is also as crucial. The use of the various tools including following standard operating procedures, properly filled request forms, periodic audits are also important interventions in further promoting the safety of blood at the clinical interface.

Judicious clinical use of blood and blood products aims to minimize unnecessary transfusions and hence the risk of exposure to blood and blood products with their inherent immunological and non immunological complications including the transfusion transmissible infections. Ensuring appropriate clinical use of blood requires that we also need to consider alternatives to blood transfusion. Without the availability or even failure of the alternatives, clinicians are left with the only option of using donor blood in the treatment of their patients. The

alternatives, which may reduce the exposure of the patient to donor blood, include prevention of anaemia in pregnancy which may be avoided with adequate antenatal visits and the use of haematinics.<sup>5</sup> Among children, as their increase growing demand; nutritional anaemias are common hence ensuring the proper nutritional care will prevent nutritional anaemias. Patients with megaloblastic anaemia due to vitamin B12 deficiency for example will respond quickly to Vitamin B12 replacement, while the use of iron is associated with adequate haemoglobin rise in iron deficiency.<sup>6,7</sup> Erythropoietin use in anaemia of chronic disease and renal failure can successfully avoid the need of blood transfusion.<sup>8</sup> Other substitutes to blood that needs no more emphasis are colloid and crystalloid fluids, as in certain levels of haemorrhage, the use of IV replacement fluids may be all that is required. The use of pharmacological alternatives, although not always available, needs to be explored.

Finally in making the decision to transfuse both clinical as well as biological criteria have to be taken into consideration. These include the clinical severity and the operational cut off values in the haemoglobin levels of the patient. It has been known for some time that a restrictive transfusion strategy may be better for adult patients than a liberal strategy.<sup>9</sup> The authors of an editorial on the study of paediatric patients rightly commented, "Red-cell transfusion should no longer be regarded as 'may help, will not hurt' but, rather, should be approached as 'first, do no harm.'<sup>10</sup> This study showed that using hemoglobin of 7 g/dL as a transfusion threshold in critically ill patients produced just as good or slightly better outcomes than a more liberal trigger of 10 g/dL.<sup>11</sup>

For consistent and effective clinical blood transfusion practice World Health Organization recommends number of elements which include a national policy on clinical use of blood, national guidelines on the clinical use of blood to aid clinicians in their decision making, a national committee on blood transfusion and a committee at hospital level to implement the policy and guidelines on the use of blood.<sup>12</sup>

To be effective we require training at all levels of blood safety including training of prescribers on appropriate use of blood as well as regular audits to ensure compliance with the guidelines.

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