Preoperative Autologous Donation: Risks and Benefits

PAD refers to the donation of blood by a patient for his or her own use prior to a scheduled elective surgery. PAD was first made available to patients as a result of the Krever Commission recommendations in 1997. The advantages to PAD at that time were reduction in the transmission of infectious disease as well as a reduction in hemolytic reactions and an avoidance of immunomodulation. Over the next several years this was a very popular blood conservation strategy.

PAD use has been declining over the last twenty years for many reasons. There is greater public confidence in the blood supply as a result of vigorous screening and testing. The rates of transmitted disease from allogeneic blood are much lower than it was in 1997. Improved surgical techniques and higher transfusion triggers have resulted in less need for allogeneic blood transfusion contributing to the weakened appeal of PAD.

PAD is not without risks. Patients undergoing PAD are at risk of anemia as a result of blood donation. Anemic surgical patients have additional risk of infection and increased bleeding. Strategies to correct this anemia prior to surgery include iron supplementation (either oral or intravenous) and/or erythropoietin which is a medication that stimulates red cell production. This requires planning and coordination but has been effective in rescuing the pre-operative anemic patient. There are risks associated with these interventions.

Another important risk of PAD to be considered is the quality of the blood. Once blood is removed from the body it must be stored in a sterile, temperature controlled environment. Additives are added to preserve the shelf life of blood. Even in perfect conditions, the blood cells deteriorate over time and may not function as well as circulating blood.

During the many steps involved in the donation, processing and storage of autologous blood there is always a chance that errors are made potentially resulting in bacterial contamination of the blood. Over the years quality improvement has developed many strategies to reduce errors in misidentification and transport of blood but there remain these potentially catastrophic risks. For example, if a patient donates their own blood for a surgical procedure and it is labeled incorrectly that patient may in fact receive another person’s blood which is not compatible with their own blood group. This is a rare occurrence but with such serious consequences it must be considered when weighing the risks and benefits of PAD.

While patients that have pre-donated autologous blood have a greater chance of having a blood transfusion than those that have not, discard rates remain high (up to 50%). This represents considerable waste of resources required to process this unused blood.

Blood transfusion either allogeneic or autologous is associated with complications such as bacterial contamination or circulatory overload.

PAD is still offered in some special circumstances. In most cases the risks described far outweigh the potential perceived benefits. For those patients undergoing a high blood loss surgery with the extremely rare blood types, PAD may be considered. For patients that absolutely refuse blood products, PAD may be an acceptable alternative. The Medical Officer at CBS for approving PAD and will consider individualized risks and benefits. Blood Management Service provides education and support to those that are inquiring about PAD and assists with the coordination of those participating in PAD.

http://www.transfusionmedicine.ca/sites/transfusionmedicine/files/articles/CGTTChapter16_June2013_FINAL.pdf
July 2016