

The Need for Autologous Blood Transfusion in Obstetrics and Gynaecology.



There has been recent interest in autologous blood transfusion as blood transfusion poses some risks of transferring infections such as hepatitis, cytomegalovirus, malaria and AIDS. In the Western World, it is estimated that 3% of AIDS cases have resulted from blood transfusion (WHO 1986). Besides decreasing the risk of infectious disease's transmission, autotransfusion also reduces the exposure to foreign antigen and avoids blood incompatibility reaction.

Blood collected from a patient for retransfusion at a latter time into the same patient is called "Autologous Blood Transfusion". The frequency of autologous transfusion is increased in the last decade, especially for cardiovascular surgery. A comprehensive National Survey in 1989 in USA revealed that the number of autologous donation programmes have increased by 65% above the level in 1985. Though the experience in Obstetric and Gynaecological surgery is limited, Shapiro and Toledo (1988) demonstrated satisfactory results in 25 myomectomy operations with intraoperative autologous transfusion using Haemonectic cell saver.

In Obstetrics and Gynaecology there are many patients with conditions potentially requiring blood

transfusion. Caesarean section and hysterectomy are the most commonly performed operations which are potential for blood loss, requiring transfusion. Other conditions include post-partum Haemorrhage, Placenta Previa, ruptured uterus and ruptured Ectopic gestation.

There are currently three ways of using a patient's own blood for transfusion

1. Preoperative autologous
2. Intraoperative Blood Salvage or Perioperative autotransfusion and
3. Haemodilution

1. Predeposit Autologous Blood Transfusion

Protocol for Autologous Donation

Patients scheduled for elective surgery, are asked to predeposit their own blood and stored as whole blood, Red blood cells, plasma or platelets for transfusion into the same patient. Donations can be scheduled at weekly interval upto 3 days before surgery. Oral iron is administered. The following guidelines are given by 'The American Association of Blood Bank's Standards for Elective preoperative autologous blood donation.

1. Haemoglobin should not be less than 11 gm/dl or packed cell volume should not be less than 34%.
2. Phlebotomy no more frequently than 3 days and not within 72 hours of surgery.

Pregnancy is not a contraindication for autologous transfusion. O'Dwyer Et al (1990) studied the safety of autologous transfusion in 272 pregnant blood donors which disproved that autologous donation may cause anaemia to the mother and the foetus. No significant fetal distress was noted during blood donation. This study reported the use of autologous

donations in the management of placenta previa, women with antibodies to high frequency antigen and elective caesarean sections.

Patients with certain neoplasm's which are not metastasising haematogenously may be considered for autologous transfusion. In the use of autologous blood in Gynaecological oncology, patients may reduce the immunosuppressive effects of homologous blood transfusion (Triulzi et al 1990). Many reports are attributing increased postoperative infection rate to homologous blood transfusion.

Other advantages of using autologous blood are :

1. The predeposited blood is available immediately when stored in a liquid form and the risk of alloimmunization to erythrocytes, leucocytes, platelets or proteins is eliminated (NBTS 1986).
2. Erythropoiesis is stimulated preoperatively by phlebotomy.
3. The reduction in the haematocrit preoperatively may reduce the risk of post operative thrombosis.

II Intraoperative Blood Salvage (IBS)

Intraoperative blood salvage is a technique to retrieve lost blood, process it and transfuse it back to the patient. There are two methods of processing IBS: Canister system and The cell salvage system.

Haemonectic cell saver which operates by retrieving blood from the operating site by suctioning it into a double Lumen Catheter in which it is immediately anticoagulated with heparin. It is then collected in a cardiotomy reservoir where filter removes gross debris. The blood is then pumped to a spinning centrifuse bowl where RBCs are separated and washed with normal saline and then concentrated to a haematocrite of about 50%. The washed, packed RBCs are pumped into the reinfusion bag and directly transfused to a patient. The entire process takes only 8 to 10 minutes. It is important to note that in IBS only the patients packed RBCs are transfused and so the patient will need fresh frozen plasma and platelets, when massive transfusion of autologous blood is used.

Intraoperative blood transfusion is efficacious in patients with a ruptured ectopic gestation. Blood lying in the peritoneal cavity is collected in sterile bottles containing 3.8% sodi-cytrate solution and after straining through few layers of sterile gauze, the blood is transfused back to the same patient.

III Haemodilution

Haemodilution can be practised in elective Gynaecological surgery. One or two units of blood are collected immediately before surgery and the blood is replaced with crystalloid/colloids solutions to lead to normovolumic haemodilution. The collected blood is retransfused back at the end of surgery. The advantages of haemodilution are the low cost and availability of fresh platelets and clotting factors from recently collected units. Haemodilution is contraindicated in anaemia, patients taking beta-blocker, and during pregnancy.

A country's need for blood depends upon the stage of development of its health care structure, its use of substitution, or supportive therapy and the type of surgical operations performed. In developed countries blood supply usually corresponds to the clinical demand. But in a developing country like India, blood supply is not satisfactory. Efforts to ensure an adequate and safe blood supply, should include striving for optimal use of blood, or blood products.

The most important principles are -

1. To reduce the demand for blood by health care services. eg. Improved antenatal services should be encouraged.
2. When appropriate and safer components and derivatives are available they are preferable to homologous blood transfusion.
3. Autologous blood transfusion should be encouraged when practical. Homologous blood should be transfused only when it is absolutely essential.

Dr. Kamal K. Deshmukh