

Autologous Blood Transfusion in Abdominal Aortic Aneurysm Surgery

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Summary

We are reporting a case of autologous blood transfusion in a patient who underwent a repair of her aortic aneurysm. Even though the operation was major and carried a high mortality, no homologous blood was used at all.

Key words: Autologous blood transfusion, aortic aneurysm.

Case Report

A 60 year old lady was admitted for repair of abdominal aortic aneurysm. She had moderate hypertension and anaesthetically assessed as ASA II. Her Hb and PCV were 13.5 g/dl and 37% respectively and other laboratory investigations were normal.

Two weeks before surgery 500 mls of blood were taken from the patient and haematenics given. HER Hb and PCV were reduced to 11.1 g/dl and 34% respectively. She however refused further blood donation.

A combined balanced anaesthesia with lumbar epidural block was used. After induction of anaesthesia, 950 mls of whole blood was extracted and replaced simultaneously with 2 units of colloid. The amount of blood collected by this method was calculated by the formula¹:

$$\text{Blood volume required} = BV \frac{(Hi - He)}{Hav}$$

- where BV = The patient's blood volume
 Hi = The patient's initial hematocrit
 He = The desired end-point hematocrit
 Hav = Average of Hi and Hav

Her PCV was further reduced to 27%. Changes in blood pressure during aortic cross-clamping were regulated by an infusion of sodium nitroprusside. Surgical hemostasis was secured before abdominal closure. The estimated blood loss was 2,000 mls and 2 units of autologous blood was transfused intra-operatively.

Post-operatively, she was observed in the ICU. Her Hb and PCV were 8.9 g/dl and 27% respectively and the remaining 500 mls of autologous blood was transfused. She recovered uneventfully and on discharge from the hospital her Hb was 8.7 g/dl.

AUTOLOGOUS BLOOD TRANSFUSION

Discussion

The risks of transmitting infectious diseases from blood transfusion have become a major concern to everybody. Even though all blood donated is screened, there is a latent period where AIDS and Hepatitis C infection will be undetected. Practicing autologous blood transfusion during surgery can avoid or reduce transfusion of homologous blood.

Basically, there are 3 methods available for autologous blood transfusion: Pre-operative donation and storage, intra-operative hemodilution and autotransfusion, and intra-operative scavenging². The first 2 methods were practiced in this patient.

Other than vascular surgery, we have successfully practiced homologous blood transfusion in closed heart, spinal, major gynaecological, orthopaedic, head and neck surgeries, plastic and major general surgeries.

Conclusion

With the recent reduction in blood donor pool due to increased incidence of blood-borne diseases, autologous transfusion should be practiced more widely in Malaysia. It ensures fresh blood with adequate levels of 2,3-DPG, viable clotting factors, platelets and white cells, and is free from transmissible diseases. It also eliminates or reduces the need for transfusion of stored homologous blood which is not without complications.

References

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