

## **Title of Presentation:**

### *Prospective Study of Red Blood Cell Transfusion Following Unilateral Primary Hip Arthroplasty Using Post-Operative Autologous Blood Salvage*

**Author:** Alex Wong, MB, ChB, UK

#### **Learning Objectives (After attending this session, the attendee should be able to):**

- understand that the autologous blood transfusion device reduce the rate of homologous blood transfusion and its associated risks.

#### **PURPOSE:**

Postoperative blood salvage with autologous blood retransfusion devices may minimize the necessity for homologous blood transfusion (HBT) but the clinical and haematological benefits to patients have yet to be clearly demonstrated for primary THR. The aim of the study was to determine whether post-operative autologous salvage system affects post-operative haemoglobin levels and reduces the need for HBT.

#### **METHODS:**

A prospective study of 211 patients, under the care of a single consultant orthopaedic surgeon, who had undergone primary unilateral total hip replacement (THR) with their preoperative, post-operative haemoglobin levels and requirement of homologous banked blood recorded. Cell Saver 5 autologous blood retransfusion system (Haemonetics Corp., Braintree, MA, USA.) was used post-operatively for autologous blood transfusion.

#### **RESULTS:**

Two hundred eleven patients with mean age of 70 years were enrolled to the study and complete data were obtained perioperatively. The mean pre-operative and post-operative haemoglobin levels were 137.1g/L and 105.1g/L, respectively. Twenty-four units of homologous red blood were transfused to twelve (5.4%) patients, with a mean of 0.109unit per case. There were 65 patients (29.4%) older than 75 years, with 9 patients having pre-operative Hb less than 120 g/L. Patients older than 75 years were associated with a greater use of homologous blood with those equal or under the age of 75 years (chi-squared test,  $p = 0.001$ ). Mean of in-hospital stay was 6 days. No transfusion-related and wound-related complications were reported in all patients.

#### **CONCLUSION:**

Total hip replacements (THR) can be safely performed without requiring homologous blood transfusion (HBT) in patients without pre-existing haematological disorder. Post-operative blood salvage device with autologous blood transfusion minimize the necessity for HBT for complicated revision arthroplasty with the clinical, haematological and economical benefits clearly demonstrated. However, its benefits for primary THR have yet to be studied. This study has shown that use of an autologous retransfusion system for primary THR reduces the necessity for HBT. Post-operative blood salvage also results in lesser patients dropping their post-operative haemoglobin (Hb) level below 9.0 g/L (15.8%). As a result our unit start to routinely use the autologous retransfusion system for primary THR.