minimum preoperative haemoglobin concentration $>10 \text{ g.dL}^{-1}$. The two methods preferred to measure blood loss during major surgery were visual estimation (22.9%) and measuring the content of suction bottles (21%). Most respondents would allow patients to bleed to a calculated haematocrit of 30% before blood transfusion (52.2%), and to administer fresh frozen plasma only if altered clotting studies were present (41.9%). Packed red cells are preferred for blood loss of 10–20% (46.7%), while fresh frozen plasma is given for abnormal blood clotting (77.6%) and nonspecific abdominal wall bleeding (49.1%). However, for clinical hypovolaemia the two products preferred were whole blood (41.6%) and packed red cells (21.5%). There were many discrepancies between our colleagues and recommendations suggested previously, i.e., by the ASA Taskforce on Blood Component therapy.¹

We suggest that intensive educational efforts should be addressed to adapt international transfusion experience to our country.

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An anaphylactoid-like reaction following infusion of salvaged unwashed drain blood

To the Editor:

In orthopaedic surgery, postoperative salvage and reinfusion of drain blood has become popular. Complications are few but febrile reactions, hypotension and upper respiratory tract oedema have been reported.^{1,2} The following case report describes an anaphylactoid-like reaction following retransfusion of unwashed salvaged drain blood after hip arthroplasty.

A 67-yr-old healthy woman developed a decrease in BP from 115 to 85 mmHg, signs of urticarial reaction on her arms, legs and body and complaints of shortness of breath, nausea and pressure around the chest area accompanying reinfusion of salvaged drain blood following hip surgery. Blood infusion was stopped and she received 50 mg mepyramine *im*, 100 mg hydrocortisone and 0.2 mg adrenaline *iv*. Within ten minutes the urticarial and symptomatic reactions disappeared and the BP normalised. Five weeks postoperatively, the patient tested negative to extended RAST (Radio-Allergo-Sorbent-Test) for bupivacaine, cefuroxin, furosemide, hydroxyethylstarch and latex, which were used during the operation.

The explanation of the reaction is speculative. After hip surgery the drained blood contains fat from bone marrow and methylmethacrylate monomers from the cement, all of which may initiate pulmonary and vascular reactions. Cascade systems in the blood are activated in drained blood and especially the anaphylatoxins C3a, C5a and TCC (terminal complement complex) can elicit anaphylactoid reactions.³

When blood is washed using the cell saver technique no activated complement is reinfused.⁴ Furthermore, the content of free plasma haemoglobin and fibrin degradation products are very low, which is not the case in unwashed blood.⁵ Therefore, we recommend, that salvaged blood both intra- and postoperatively is washed using the cell saver principle before retransfusion.

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