Editorial

Can safe be safer? Hip arthroplasty by hypotensive epidural anesthesia

Currently, about 800,000 total hip replacement (THR) operations are performed around the world each year and in the year 2000 there will be 25,000,000 people who have had a THR. By then, one third of all THR operations will be revisions which suggests a huge number of blood transfusions. With the use of normotensive general, spinal or epidural anesthesia, specialized units now have average transfusion rates less than 2 units for each primary THR, while the estimated general standard is about 3.5 units. In revisions, these numbers are easily doubled. Up to now, this has not worried Scandinavian orthopedic surgeons very much because good availability and pure blood products thanks to well developed blood bank organizations which employ only well-selected voluntary blood donors. Because of increased demands to perform more procedures with less cost, the introduction of blood-saving hypotensive epidural anesthesia (HEA) advocated by Nigel E. Sharrock and Eduardo A. Salvati (pp. 91–107 in this issue) appears timely. Moreover, both the patients' and the surgeons' awareness of potentially increasing risk of viral contamination of blood products increases the enthusiasm to reduce the amount of transfusions. While HEA demands good skills in the anesthesist and advanced technical equipment, it seems to combine the virtues of reduced intraoperative blood loss with a lower risk of postoperative deep vein thrombosis and pulmonary embolism. The data analyzed by Sharrock and Salvati are based on more than 8,000 THR operations performed with the use of HEA at the Hospital for Special Surgery in New York and are very promising.

The technique of HEA combines an extensive epidural blockade with an intravenous infusion of low dose epinephrine and the goal is to maintain a mean arterial pressure of 50 mmHg during the operation, with preservation of central venous pressure, heart rate, stroke volume, cardiac output and an augmentation of blood flow to the lower extremities. For the surgeon, this provides a practically bloodless field which results in shorter operation times. It has also been shown that cementation is improved, which reduces prosthetic loosening rates.

Moreover, Sharrock and Salvati have been able to show that HEA does not adversely affect cardiac, renal or cerebral functions and that no late neuropsychological complications occur. The intraoperative blood loss varies from 100 to 300 mL and the total need for transfusion can be covered by one or two units of predonated autologous blood.

In published series, acetylsalicylates have been commonly used for prophylaxis against thromboembolism. In Scandinavia, the use of low-molecular weight heparin is common, and while it theoretically reduces the risk of deep venous thrombosis and pulmonary embolism, it also seems to increase the postoperative bleeding. On the basis of the results of Sharrock and Salvati, it appears wise to reconsider the current praxis of thrombotic prophylaxis in THR.

The HEA method is technically demanding: an arterial line, an anesthetic monitor capable of displaying arterial and central venous pressures, an electrocardiogram, pulse oximeter and at least one infusion pump are necessary. Although THRs become more laborious for the anesthesists, the surgeon may work more effectively and the total standard of THR surgery is likely to improve.

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