INCIDENTAL HYPOTHERMIA DURING SURGERY FOR PERIPHERAL VASCULAR DISEASE

Sir,—In 1971 Searle reported a case of incidental hypothermia during surgery for peripheral vascular disease. This occurred in a patient undergoing extensive surgery lasting 8 hours despite the use of a water mattress heated to 37°C and an in-line heating coil at 37°C for blood transfusion.

Recently this patient underwent a similar operation where the extent of the incision was similar and the operation lasted 6 hours. On this occasion the patient was undergoing emergency surgery for massive haematemesis. Her preoperative systolic pressure was 120 mm Hg arterial (normally 240 mm Hg) and she had been transfused with 9 units of cold blood in the hour immediately prior to surgery. Anaesthesia was induced with nitrous oxide 4 l./min, oxygen 4 l./min and halothane 0.5%. This was followed by suxamethonium 100 mg and an 8-mm cuffed endotracheal tube was passed. Anaesthesia was maintained with nitrous oxide 4 l./min, oxygen 4 l./min and halothane 0.5%. This was followed by suxamethonium 100 mg and an 8-mm cuffed endotracheal tube was passed. Anaesthesia was induced with nitrous oxide 4 l./min, oxygen 4 l./min and halothane 0.5%. This was followed by suxamethonium 100 mg and an 8-mm cuffed endotracheal tube was passed. Anaesthesia was induced with nitrous oxide 4 l./min, oxygen 4 l./min and halothane 0.5%. This was followed by suxamethonium 100 mg and an 8-mm cuffed endotracheal tube was passed. Anaesthesia was induced with nitrous oxide 4 l./min, oxygen 4 l./min and halothane 0.5%.

Phenoperidine 8 mg and pancuronium 13 mg were given incrementally throughout the course of the procedure, and the patient was ventilated artificially.

Arterial blood pressure was monitored using an oscillogonometer. Central venous pressure was measured via a catheter inserted percutaneously into the right internal jugular vein. A Foley catheter was passed immediately before surgery and the urine output was recorded every 30 minutes. The electrocardiogram was monitored throughout surgery. Thermistors were placed in the nasopharynx and on the right calf and the temperatures at these sites were measured with a Light thermometer. The patient was placed on a water mattress heated to 37°C. Two peripheral intravenous infusions were set up (one in each arm) and an in-line heating coil set at 37°C was used in each.

Surgical exposure revealed a large gastric ulcer which had eroded the synthetic right renal artery. Right nephrectomy and partial gastrectomy were performed. During the operation 20 units of blood and 4.5 litres of clear fluid were infused via the heating coils; 2 litres of clear fluid at ambient temperature were also infused via the central venous line. In contrast to her previous anaesthetic both her central and peripheral temperatures increased slightly during the operation. At the commencement of her previous operation her nasopharyngeal temperature was 35.8°C and toe temperature 31.1°C and by 5 hours they had fallen to 32.3°C and 25.7°C respectively. During this second procedure her initial nasopharyngeal temperature was 35°C and it increased to 35.9°C at 5 hours. The calf temperature was 30°C and this increased to 30.9°C at 5 hours. The cold calf temperature at the start of this procedure was a reflection of her hypovolaemic state (Ross et al., 1969) and served to maintain her central temperature prior to anaesthesia. During the course of this second operation the patient received a considerable quantity of warmed blood and intravenous fluids. This may well have helped to maintain temperature balance, but the essential difference from her previous operation was that continuous epidural analgesia was not employed.

In reporting her previous case history Searle stated "heat loss would almost certainly have been less in the absence of an epidural block, because peripheral vasoconstriction is part of the response to cooling". Following this second experience there can be no doubt that the epidural block was the reason for the hypothermia that occurred on that occasion.

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REFERENCES