

How to Deal with the Temperature Instability that is Unavoidable During Cytoreductive Surgery (CRS) and Hyperthermic Intraperitoneal Chemotherapy (HIPEC)?

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Introduction

Since cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) has been accepted worldwide as a promising treatment model for end-stage cancer patients with peritoneal involvement, the major concern of the procedure emerging from the experience gained from wide series seems to be 'thermoregulation'. Consecutive procedures starting with extensive abdominal exploration and CRS, concerning the large area of surgical exposure for a long period of time and loss of ascites outside, will absolutely result in hypothermia [1]. On the contrary, the consequent HIPEC procedure with heated chemotherapeutic agents (cisplatin, mitomycin etc.) up to 44°C for 60 to 90 minutes causes a significant increase in the body temperature of the patient, even with open-abdomen technique. From the evacuation of heated solutions outside, development of a new hypothermia process becomes inevitable. Regarding all these issues mentioned above, it is clear that anaesthesiologist and surgeon should work together to combat thermoregulation problems in each phase of this very long and complex operative procedure. A strong and rapid interaction between the teams is sine qua non. Beside the application of large-bored intravenous cannulas, arterial cannula, central venous line and urinary catheter, from the beginning of the operation; a continuous monitoring of core body temperature by an esophageal probe should never be forgotten. In the first hypothermia period during

debulking procedure, air warming blankets along with infusion of warmed saline and blood products will be adequate. The second phase is more complicated as hyperthermia causes metabolic acidosis and peripheral vasodilatation [2]. The well-known toxicity of direct installation of chemotherapeutics will also complicate the situation. Frequent blood gas analyses and close monitoring of liver and kidney functions should accompany the routine application of cooled intravenous fluids and ice-packs. When HIPEC procedure is completed, temperature will start to decrease again and a new hypothermia period can be anticipated. In conclusion, since thermoregulation plays a significant role in maintaining homeostasis, coagulation, antiinflammatory cascade and neurological status intact, all measures should be undertaken to maintain normal core temperature in patients undergoing CRS and HIPEC.

References

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