

Structure of operating room to avoid perioperative complication

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There are many requirements for the operating room (OR). Its structure should secure the efficacy for surgical therapy. Purification is the most important requirement for avoiding surgical infections. Simultaneously the environment should be comfortable not only for the patient but also for surgeons. Cleanliness of the OR is comfort for all people. But, the comfortable temperature for the surgeons is lower than that for patient. Then, the patients have intraoperative hypothermia in the OR which temperature is suitable for surgeons. For avoiding surgical complications concerned intraoperative hypothermia the new air conditioning system (ACS) was introduced in the new operating theater. The basic research was performed in the experiment room before the construction of new ORs. The result shows the effectiveness of new ACS which can controlled the temperatures of the air flow for patients and surgeons independently. After the construction of new ORs the temperatures of the surgeons' shoulder and that of the operating table were measured. In the result the temperature of the surgeon's shoulder was $21.8 \pm 1.1^{\circ}\text{C}$ and that of the operating table was $23.7 \pm 1.0^{\circ}\text{C}$ when the temperature of central air flow was 25°C and that of lateral air flow was 21°C . Then, the clinical study was performed after the recognition of the ethics committee. The subject of the clinical study was 316 patients with colorectal cancer. 206 of them underwent laparoscopic surgery in the old ORs with conventional ACS and 110 of them underwent it in new ORs with new ACS. The body temperatures were compared with the temperature before starting surgery and the changes of the patients underwent the surgery in new ORs were compared with those of the patients in old ORs. In the result the temperature changes of the patients in old ORs were $-0.40 \pm 0.34^{\circ}\text{C}$, $-0.40 \pm 0.41^{\circ}\text{C}$ and $-0.32 \pm 0.42^{\circ}\text{C}$ at 30, 60 and 90 minutes after starting surgery respectively, and those of the patients in new ORs were $-0.19 \pm 0.25^{\circ}\text{C}$, $-0.40 \pm 0.41^{\circ}\text{C}$ and $+0.05 \pm 0.39^{\circ}\text{C}$ at the same times. In conclusion the new ACS is useful to avoid the patients' hypothermia.