Efficacy of a New Convective Patient Warming Gown for temperature management in da-Vinci robotic - assisted laparoscopic prostatectomy

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/ BACKGROUND

Perioperative hypothermia is a common complication during long laparoscopic surgical procedures under combined epidural/general anesthesia. Patient extreme position during robotic laparoscopic surgery limits the amount of cutaneous surface available and patient access for intraoperative warming. Thus normothermia is difficult to achieve with current patient warming devices[1].

A new Mistral-Air™ Warming Gown (The Surgical Company International (TSCI), Amersfoort, Netherlands) has been proved to be effective for maintaining normothermia in surgical procedures of 30-120 min duration under general anesthesia[2].

GOAL: To test the effectiveness of Mistral Air™ Warming gown in maintaining normothermia in patients undergoing robotic prostatectomy surgery.

/ METHODS

Prospective, observational study. After IRB approval and informed consent, 23 ASA I-III consecutive patients undergoing robotic prostatectomy surgery with combined epidural/general anesthesia were recruited. After 2 patients were excluded due to incomplete data, 21 were studied. Mistral-Air™ Warming Gown was used for perioperative patient warming from arrival at OR holding area until PACU discharge.

All patients received preoperative forced air warming, using the gown, during monitoring and lumbar epidural catheter placement before induction of general anesthesia, followed by active convective air intraoperative warming. Laparoscopic gas was warmed during insufflation. Oral temperature was recorded in the preoperative and postoperative periods. Intraoperative core temperature was continuously measured with a nasopharyngeal probe.

/ RESULTS
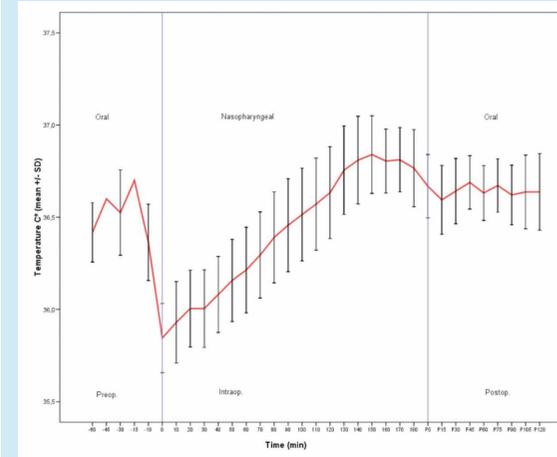
/ TEMPERATURE ºC

	MEAN ±SD	RANGE
Preoperative (oral)	36.4 ± 0.25	(35.9 - 36.7)
Induction +10 min	35.9 ± 0.47	(35.1 - 36.8)
20 min	36.0 ± 0.44	(35.1 - 36.8)
60 min	36.2 ± 0.51	(35.6 - 37.5)
120 min	36.6 ± 0.54	(35.8 - 38.0)
end surgery	36.8 ± 0.38	(35.8 - 37.4)

/ PATIENT DATA

	MEAN ±SD	RANGE
Age (years)	60.9 ± 5.18	(53 - 72)
Weight (kg)	80.3 ± 11.49	(64 - 100)
Height (cm)	172.2 ± 6.67	(158 - 186)
BMI (kg/m²)	27.0 ± 3.06	(22.15 - 32.18)

/ TEMPERATURE ºC

	MEAN ±SD	RANGE
PACU	36.6 ± 0.35	(35.9 - 37.4)
30 min	36.6 ± 0.37	(36.0 - 37.4)
60 min	36.6 ± 0.31	(36.0 - 37.2)
90 min	36.6 ± 0.33	(36.0 - 37.2)
PACU discharge	36.7 ± 0.37	(36.0 - 37.4)

/ CONCLUSIONS

Active pre-warming with a forced-air warmer and Mistral-Air™ Warming Gown (TSCI) in robotic prostatectomy procedures:

- 1) Attenuates body temperature redistribution after anesthesia induction.

- 2) Increases core temperature, achieving intraoperative normothermia after 20 minutes from anesthesia induction.

- 3) Normothermia was maintained up to the end of surgery and during the postoperative period at PACU.

- 4) Thermoflect material allows heat to stay around the patient avoiding heat loss during transfer and in the postoperative period.

/ REFERENCES

1. Danic MJ, et al . J Robotic Surg 2007; 1: 119-123
2. Zaballos JM, et al . ASA abstract # A631, 2012

Mistral Air™ Warming gown

Mistral Air™ Warming gown

Oral sublingual temperature on arrival OR holding area, before induction and postoperatively.

Nasopharyngeal temperature monitored continuously during surgery.

Epidural Anesthesia.

Monitoring.

Anesthesia induction.

Patient positioning.

Patient positioning.

Laparoscopy.

Steep Trendelenburg position.

Robot docking.

Surgery.

da Vinci console.

Monitoring.

End of surgery-extubation.

PACU transfer.