Case Study

Comparative study on eardrum temperature and core temperature measured by TEMPLE TOUCH PRO™

Seirei Hamamatsu Hospital Clinical Engineering Department
Masatoshi Sagawa / Norihisa Kitamoto

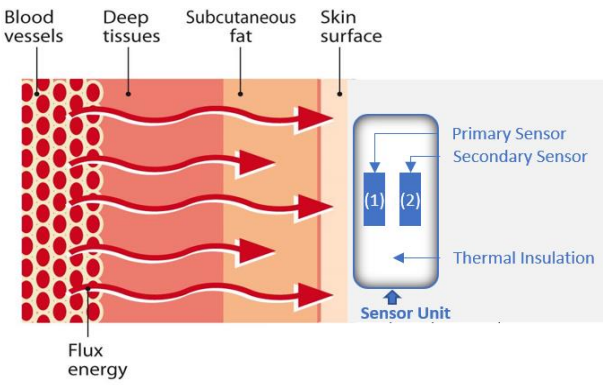
Introduction

We have newly adopted TTP (manufactured MEDISIM LIMITED), a continuous core temperature monitoring system. It can be continuously monitored by calculating the core temperature by attaching a body surface sensor on the temporal artery (temple).The aim of this study was to compare TTP with the conventional eardrum temperature.

Figure 1. TTP and Sensor

About Temple Touch Pro

TTP measures the heat flow from the temporal artery to the skin surface with a sensor attached to the temple, and calculates the core temperature.



Methods

It was a prospective method comparison study. Core body temperature was measured by TTP and RSP temperature probe (eardrum temperature) manufactured by Smiths medical.

Cases

- **Average Age**: 57 SD ±17.26 Minimum-Maximum Age: 26-84
- **BMI:** 22.44kg/m2 SD ±3.99 BMI Average Minimum – Maximum: 17.62 - 32.63

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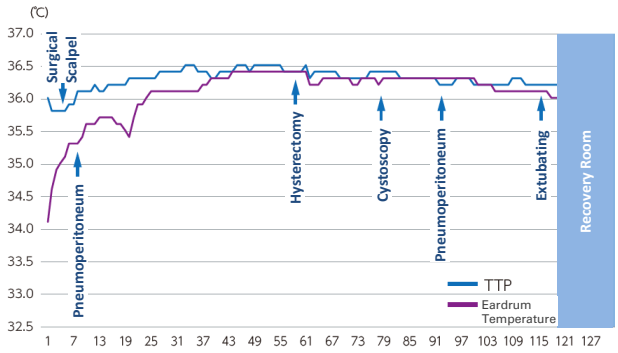
Results

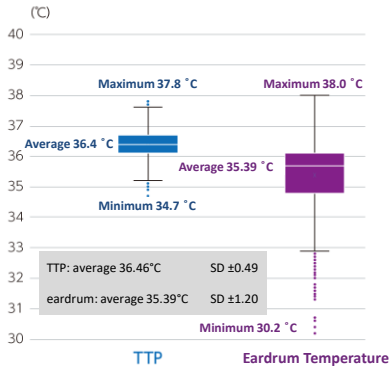
During total laparoscopic hysterectomy, TTP and eardrum temperature were able to perform more stable measurements from the start of measurement (Graph 1).

In addition, as a result of measuring in 23 cases, there was less variation in TTP (Graph 2).

Graph 1. Total laparoscopic hysterectomy with TTP/tympanic temperature during surgery



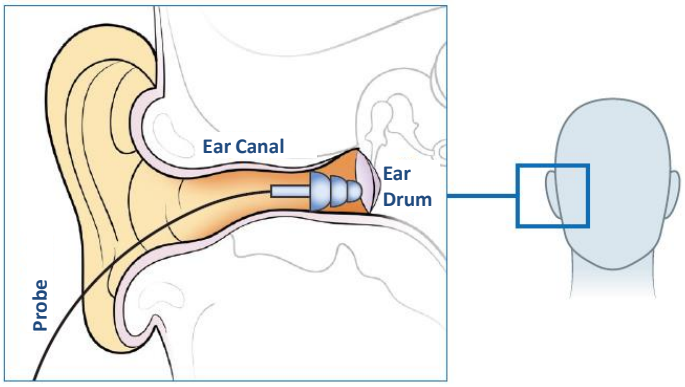
Graph 2. Comparison with TTP and eardrum temperature



Graph 1 and Graph 2: from the presentation of the 40th Annual Meeting of the Japanese Association for Operative Medicine (October 12th-13th, 2018)

Discussion

Compared with eardrum temperature, TTP was able to perform stable measurement with simple procedure of attaching a sensor without being affected by body disparity or individual patient's anatomy. In addition, TTP is safety because there is little invasion to the eardrum. However, there were errors of lower temperature, such as when the reset button was not pressed after attaching a sensor or when the connection of the cables was loose; the number of connection parts of TTP was larger than that of the eardrum temperature sensor.



Conclusion

Since TTP can be measured core temperature non-invasively in the simple way, it is expected to be useful not only during surgery but also before anesthesia induction and postoperative temperature measurement in the recovery room.

Revised and restructured the presentation at the 40th Annual Meeting of the Japanese Association for Operative Medicine (October 12th-13th, 2018)