Customer reference
Tcore® Patient Temperature Monitoring System

In two major medical centres in Naples, Italy, doctors and nurses are sharing their experiences with the Tcore® patient temperature monitoring system. This innovative product provides accurate, almost instantaneous core temperature data without resorting to traditional invasive techniques. This user-friendly technology helps prevent potentially harmful hypothermia while at the same time being very comfortable for patients, compared to more invasive methods.

The phenomenon of intraoperative hypothermia has come under increased scrutiny in recent clinical practice. Studies have shown that it is linked to significant morbidity, increased length of stay and increased cost of care\(^{1,2}\). In the past, systems used to measure body temperature have suffered from a number of clear disadvantages. While non-invasive systems lack the necessary accuracy, invasive solutions are both uncomfortable and carry the risk of complications and injury\(^{3,4}\). The problem lies in the fact that body core temperature is difficult to measure using indirect methods. Because of these disadvantages, core temperature monitoring has not yet found its way into routine clinical practice in spite of the potential benefits for both patients and hospitals.

With an increasing amount of data pointing towards the clear advantages of core temperature monitoring in terms of cost and outcome, the stage was set for the arrival of a temperature monitoring system that could provide accurate temperature data without the use of invasive techniques. A non-invasive system that is easy to apply and use yet comfortable for patients. With early and reliable detection of hypothermia, appropriate countermeasures can be taken, thereby avoiding its potentially detrimental effects\(^{5}\).

In two Italian medical centres, both located in the city of Naples, this new technology is being put to work. At the Istituto Nazionale Tumori “Fondazione Pascale”, the largest IRCCS (Scientific Institute for Research, Hospitalisation and Healthcare) oncology centre in southern Italy, the Dräger Tcore® system is being used during longer surgical procedures. At the Cardarelli Hospital, a major accident and emergency centre, perioperative indications are being examined.

“Monitoring the core temperature in the operating room is important because, particularly for lengthy operations, one of the main complications of the postoperative period is related to prolonged hypothermia.”

Doctor Arturo Cuomo, Director of Anaesthesia, Intensive Care and Pain Therapy at the Istituto Tumori Pascale di Napoli
Routine integration of the Tcore® system in the entire perioperative pathway, from the induction room, during transport and in the operating room.

A non-invasive method
The Tcore® patient temperature monitoring system uses innovative thermal flow sensor technology to accurately measure core temperature without resorting to the use of invasive methods such as rectal or oesophageal probes. The sensor is attached to the patient’s temple and, within minutes, delivers accurate core temperature data. The compact design makes it ideal for use in operating and recovery rooms, intermediate and intensive care units and even on general wards.

“Measuring body temperature is extremely important nowadays. In the past, measuring body temperature was basically shelved. Fewer than 5% of patients had their body temperature measured, which was perhaps also due to the complexity of using some of the methods available at that time.”

Dr Raffaele di Minno, Chief of Anaesthesia and Intensive Care, Postoperative Intensive Care and Hyperbaric Oxygen Therapy, Ospedale Cardarelli di Napoli
This ease of use is what makes Tcore® so revolutionary, as Dr di Minno elaborates, “With these less invasive systems, such as the Dräger Tcore, it has become very easy to measure temperature and it is very useful during the induction phase in the induction room. It gives us baseline data on the patient’s body temperature before undergoing surgery and it is useful during the entire operating phase, obviously to monitor any drop in temperature. It is naturally useful in the recovery phase and subsequent postoperative intensive care phase, where the problem of hypothermia is now being more closely monitored.”

Giuseppe Pellone, a nurse at the surgical department of the Cardarelli, is also convinced. “From the nursing point of view, compared to the other systems, we found the Tcore easy to apply, it’s not invasive and it can be applied to the patient quickly and easily.” Beyond the ease of use, he was also impressed by the speed in the application of the system.

So what exactly are the advantages of preventing hypothermia for patients and health care providers? On the one hand, there’s the issue of patient discomfort. Patients suffering from even mild hypothermia are naturally uncomfortable, as anyone who has ever been cold can confirm. For patients with postoperative pain, this discomfort is exacerbated. They require more analgesics and have longer recovery times\(^{11,12}\). But beyond this, hypothermia can lead to more serious problems. Studies have linked perioperative hypothermia to higher infection rates, increased blood loss and, as a result longer ICU and hospital stays\(^{13,18}\). Here, the benefits of maintaining normothermia become clear.
“Non-invasive body temperature monitoring certainly improves patient outcome because hypothermia is one of the causes of postoperative complications.”
Dr Arturo Cuomo

“Monitoring body temperature can certainly improve patient outcome simply because it reduces all the postoperative complications. I would like to include obviously infections, which in the case of hypothermia are more prevalent, and factors which prolong the patient’s stay and therefore increase the costs for them and for the health service.”
Dr Raffaele di Minno

Francesco Del Prato
Nursing Supervisor, Anaesthesia and Intensive Care, Istituto Tumori Pascale di Napoli

Francesca Bifulco
Anaesthesiologist and Intensive Care Specialist, Istituto Tumori Pascale di Napoli
Accurate Temperature Measurement

The Tcore® system is intended for use throughout the hospital. Thanks to its simple design, only a minimum of training and preparation are necessary for integration into routine use. Being compact, the Tcore® sensor can be attached to almost any Dräger monitor, thereby eliminating the need for additional specialised hardware. Because the Tcore® is intended to be single use, cross-contamination and disinfection are not a concern.

The Tcore® patient temperature monitoring system is setting new standards, accuracy, comfort and ease of use in a variety of clinical settings. Since maintaining normothermia is of such importance, there are many reasons to take advantage of this new Dräger technology.

Dr Francesca Bifulco, from the Department of Anaesthesia and Intensive Care Analgesia, recognises the advantages of the Tcore® concept and sees opportunities for routine clinical use. “This system has changed our attitude to monitoring body temperature because it is easy to use.”

Tullio Cafiero
Director of Anaesthesia and Intensive Care, Ospedale Cardarelli di Napoli

Giuseppe Pellone
Surgical nurse, Ospedale Cardarelli di Napoli
At your side in:

Istituto Tumori Pascale di Napoli
The IRCCS Istituto Nazionale Tumori Fondazione G. Pascale, Naples, Italy, is one of the oldest cancer treatment centres in Italy and is a member of the Italian National Health System. The IRCCS Pascale is one of the largest and most technologically advanced hospitals in southern Italy. The hospital has been an early adopter of new technologies in healthcare, including video laparoscopy and robotic surgery for various surgical procedures. Current focal points include neurosurgical and colorectal surgery, thoracic surgery, liver surgery, melanoma surgery as well as gynaecological and urological surgery. Given the complex nature of these kind of procedures as well as the patients’ emotional fragility – due to both immune system alterations related to cancer and neo-adjuvant therapies and a common presence of significant comorbidity, the hospital’s primary objective is to reduce perioperative and postoperative complications.

Ospedale Antonio Cardarelli di Napoli
The Antonio Cardarelli Hospital, based in Naples, is one of the most renowned Italian hospitals for medical and surgical emergencies. It’s a second level DEA (Emergency and Admissions Department) facility which offers all surgical procedures with the exception of cardiac surgery and is a referral centre for many smaller hospitals in the Campania region. All procedures are carried out with a very high level of medical and technological specialisation.
Literature

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