A cool new way to cool (or warm)!

The cooling or warming of patients being treated for certain medical conditions can greatly increase their chance of survival. For example, survival after cardiac arrest can be almost doubled if the patient is gently cooled for about 24 hours. Patients with stroke, trauma, and spinal cord injuries can also heal better and suffer less brain damage if they are maintained at a normal, or lower than normal, temperature for a certain period while also avoiding fevers. Patients undergoing surgery, however, need to be maintained at normal body temperature. If patients are too cold during surgery they tend to lose more blood, develop infections, and suffer heart damage. Unplanned decreases in body temperature before, during, or after surgery can increase the time patients must stay in the hospital and add $7,000 or more, per patient, to the costs of hospitalization.

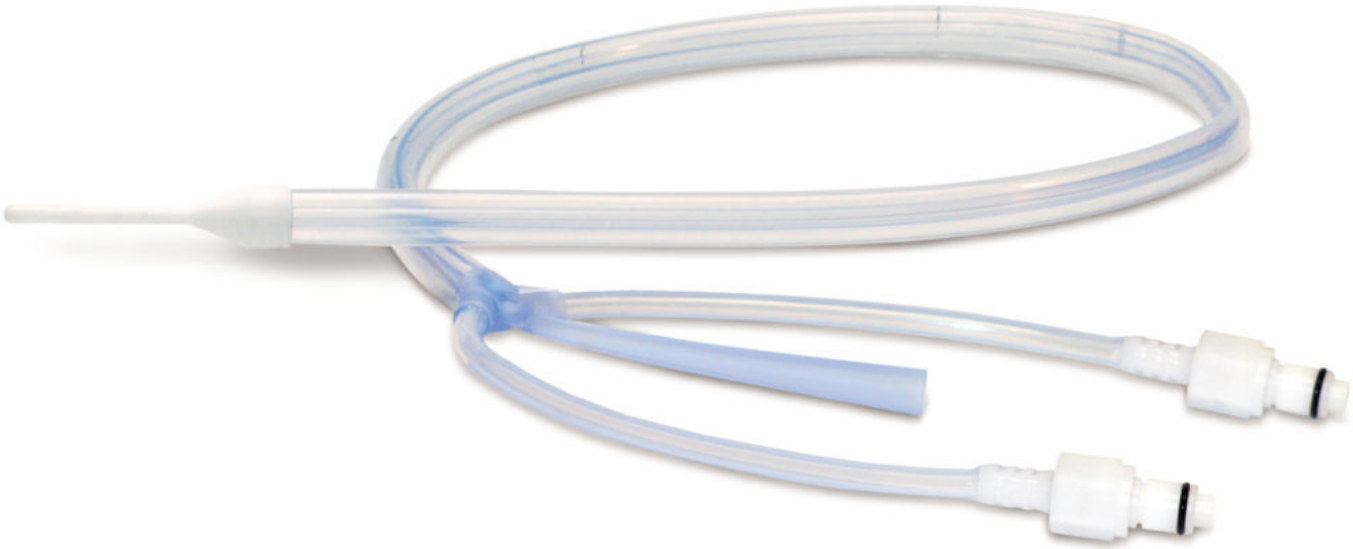

Fig. 1. The EnsoETM, which connects to an external heat exchange console to circulate cold or warm water in a closed-loop, allowing easy core patient temperature management for cooling, warming, or maintaining patient temperature.

Traditionally, patient temperature is controlled by means of water blankets, air blankets, or catheters placed in blood vessels, but these methods do not allow for easy temperature adjustment and tend to introduce complications. Water blankets are easy to put on or under a patient, but they touch the skin and can lead to excessive shivering, which in turn may increase stress and shivering

and thus counteract the cooling that is desired. Air blankets are generally used for warming, but to be effective they need to cover most of the patient's body, which is difficult when a surgical procedure exposes tissues and organs to heat loss. Special intravascular catheters are used for cooling or warming, but they must be inserted by a physician and add the risks of infection and blood clots.

A new device is now available that cools or warms a patient internally by way of the esophagus and avoids many of the complications encountered with traditional devices. Known as the EnsoETM, for esophageal temperature management, this device is a multi-lumen silicone tube that is closed at one end and connected to an external heat exchanger (standard water blanket console, or chiller) at the other. (Fig. 1) A central lumen is available to allow for gastric decompression and drainage. (Fig. 2)

Fig. 2. Close up view of the feeding and medication administration port for the EnsoETM, which allows tube feeds and medications to be given while patients are being cooled or warmed.

The device is inserted in the mouth and passed along the esophagus until it reaches the stomach. Once it is in place, the temperature of the water circulating inside the tube is adjusted safely and efficiently by means of the control system in the heat exchanger. Warming or cooling through the core of the patient in this fashion is very efficient, since skin contact is avoided, and because much of the body's blood flow surrounds the esophagus. Placement of this new device is easy and similar to many of the other types of tubes inserted in the stomach while in the hospital. Patients do not feel the placement because, typically, they are not awake, either because they have been anesthetized or because of their medical condition. As highlighted in this article, numerous studies show that this new device provides a safe and effective means of temperature management. For patients being cooled, the EnsoETM results in significantly less shivering than in patients cooled with surface blankets, thus reducing the costs of sedatives and anti-shivering medications. A further advantage of the device is that since it is placed in the gastrointestinal tract, placement involves a non-sterile procedure, further enhancing the ease of use and allowing a wide variety of healthcare provider to take control of their patient's temperature to provide optimum care.

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