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Health Briefs

by **Carla Kemp** • *Senior Editor*

Temporal artery thermometers may rival rectal thermometers in ED

◆ Batra P, Goyal S. *Pediatr Emerg Care.* 2013;29:63-66.

Temperatures taken with temporal artery thermometers correlated with rectal temperatures better than axillary and tympanic membrane thermometry, according to a study of 100 children in a pediatric emergency department (ED).

Rectal temperature is considered the gold standard for predicting core body temperature. However, older patients may resist the use of rectal thermometers, and there is a theoretical risk of rectal perforation, cross contamination and HIV transmission.

Temporal artery and tympanic membrane thermometers both have infrared radiation emission detectors. Studies of the accuracy of these thermometers, as well as measuring temperature over the axillary artery, have had mixed results. In addition, tympanic membrane thermometers cannot be used in children younger than 2 years because they have narrow ear canals.

The authors of this study sought to determine which of the three methods of measuring body temperature predicts rectal temperature best in both febrile and afebrile patients 2-12 years old.

Each patient's temperature was measured first with a rectal mercury thermometer for three minutes. Fever was diagnosed if the temperature was greater than 38 degrees Celsius (100.4 degrees Fahrenheit), and hypothermia was defined as rectal temperature of less than 35 degrees Celsius (95 degrees Fahrenheit).

The patients' axillary temperature was measured using an axillary digital thermometer for five minutes; tympanic membrane temperature was measured in both ears; and temporal artery temperature was measured using a temporal artery thermometer.

Temperatures taken with temporal artery thermometers correlated better with rectal temperature than those taken with axillary digital or tympanic membrane thermometers, according to a study of 100 children.

Results showed that all temperatures correlated well with the rectal temperature, with temporal artery temperature showing the best correlation. Temporal artery thermometer predicted rectal temperature in 49 of 50 febrile patients and 45 of 50 afebrile patients within a range of 0.2 degrees Celsius. No patients had hypothermia.

The authors concluded that temporal artery thermometry has the potential to replace rectal thermometry among ED patients ages 2-12 years old. Further studies should examine the accuracy of these thermometers in patients younger than 2 years of age and those with hypothermia.

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