

# Effect of warmed irrigation solution on core body temperature during hip arthroscopy for femoroacetabular impingement.

Parodi D, Valderrama J, Tobar C, Besomi J, López J, Lara J, Ilic JP.

## Abstract

**PURPOSE:** To determine the effect of warming arthroscopic irrigation solution on core body temperature during hip arthroscopic surgery in patients with femoroacetabular impingement.

**METHODS:** An analytical, prospective, observational study was performed in a cohort of 166 consecutive patients. All patients underwent hip arthroscopy for treatment of femoroacetabular impingement. Two groups were studied: patients operated on with arthroscopic irrigation solution warmed up to  $32^{\circ}\text{C} \pm 2^{\circ}\text{C}$  ( $89.6^{\circ}\text{F} \pm 3.6^{\circ}\text{F}$ ) and a control group comprising patients operated on with irrigation solution used at room temperature. Relevant information was collected regarding the patients (age, sex, body mass index, and blood pressure) and the procedure (volume and temperature of saline solution, pressure of fluid pump, surgery time, and room temperature). Corresponding statistical analysis was performed with STATA 11.0 (StataCorp, College Station, TX), by use of descriptive statistics, parametric and nonparametric tests, and a generalized estimating equation model for repeated measurements.

**RESULTS:** Both groups were comparable in terms of age, sex, systolic and diastolic blood pressure, body mass index, volume of irrigation solution used, and room temperature. The mean age of the cohort was 33 years (range, 14 to 60 years); mean body mass index,  $23.7 \text{ kg/m}^2$  (range,  $17.2$  to  $34 \text{ kg/m}^2$ ); mean volume of irrigation solution, 26 L (range, 12 to 39 L); mean systolic blood pressure, 97 mm Hg; mean diastolic blood pressure, 51 mm Hg; and mean surgical time, 110 minutes. A decrease in core body temperature by  $0.5^{\circ}\text{C}$  ( $0.9^{\circ}\text{F}$ ) or greater occurred during the course of surgery in 66% of patients in the control group versus 28% in the warmed-solution group ( $P < .001$ ). At least 1 core body temperature measurement of less than  $36^{\circ}\text{C}$  ( $96.8^{\circ}\text{F}$ ) was recorded in 48% of patients in the control group versus 14% in the warmed-solution group ( $P < .001$ ). The trend toward a decrease in core body temperature was 4 times greater in the control group than in the warmed-solution group ( $P < .001$ ).

**CONCLUSIONS:** Use of arthroscopic irrigation solution warmed up to  $32^{\circ}\text{C}$  ( $89.6^{\circ}\text{F}$ ) reduces the risk of a decrease in core body temperature during hip arthroscopy in patients with femoroacetabular impingement.

**LEVEL OF EVIDENCE:** Level II, analytical, prospective, comparative study in a cohort of consecutive patients.