TITLE: SKIN-SURFACE TEMPERATURE GRADIENTS CORRELATE WITH FINGERTIP BLOOD FLOW

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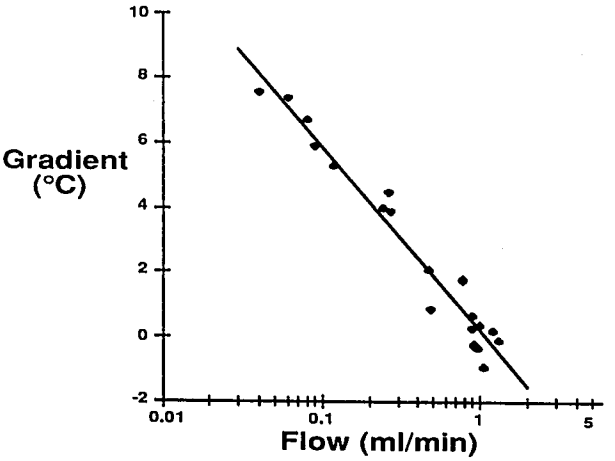
Skin-surface temperature gradients (forearm temperature - fingertip temperature) have been used as an index of thermoregulatory peripheral vasoconstriction. However, they have not been specifically compared with total finger blood flow; nor is it known how long it takes fingertip temperature to fully reflect an abrupt change in finger blood flow. Steady-state skin-temperature gradients were compared with total fingertip blood flow in 19 healthy volunteers. There was an excellent correlation between steady state skin-surface temperature gradients and total fingertip blood flow measured using venous-occlusion volume plethysmography[1]: **Gradient = 0.2 - 5.7*Log(Flow), r=0.98**. The half time for fingertip cooling following complete arterial obstruction (in eight volunteers) was 6.6 ± 1.2 min. The authors conclude that skin-temperature gradients are an accurate measure of thermoregulatory peripheral vasoconstriction.



Legend: Total fingertip blood flow correlated well with skin-temperature gradients (forearm temperature - fingertip temperature). **Gradient = 0.2 - 5.7*Log(Flow), r=0.98**

References:

1. Burch GE: Digital Phlethysmography. New York, Grune & Stratton, 1954

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TITLE: FORCED AIR WARMING MINIMIZES HYPOTHERMIA DURING ORTHOTOPIC LIVER TRANSPLANTATION

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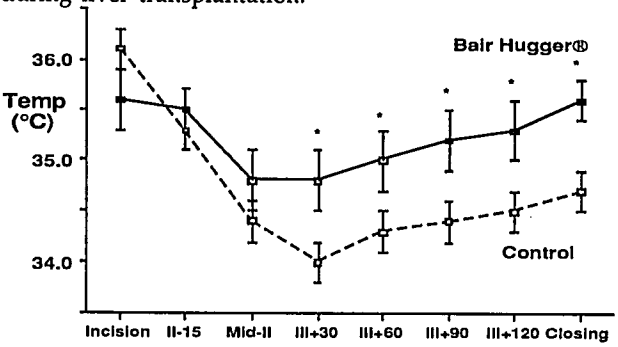
Intraoperative hypothermia is a frequent problem during orthotopic liver transplantation.[1] Therefore, we tested the hypothesis that a forced air warmer would minimize intraoperative hypothermia during liver transplantation.

With approval of our Committee on Human Research, we recorded distal esophageal temperature during liver transplantation in 22 patients. Eleven patients had our standard methods of temperature control: warming blanket, airway humidifier, 2 L/min fresh gas flows, plastic head wrappings, insulated wrapping of the lower extremities, and warming of all blood products and intravenous fluids to 37°C. In the other 11, the legs were left unwrapped, and a pediatric-sized air blanket covering the legs to the level of the symphysis pubis was attached to a Bair Hugger® forced air warmer set on "high" (≈43°C). All methods of temperature control were initiated following the induction of anesthesia. Esophageal temperature was recorded at the time of incision, 15 min before the anhepatic period (II-15), the midpoint of the anhepatic period (Mid-II), at 30 (III+30), 60 (III+60) and 90 (III+90) min following graft reperfusion, and at closing of the abdominal incision. Results are expressed as mean ± SEM and compared using student's t-tests. P values < 0.05 were considered significant (*).

The forced air warmer produced significantly higher temperatures at all times after the anhepatic period. At closure of the abdominal incision, this group had reached a temperature of 35.6±0.2°C compared with 34.7±0.2°C in the control group. A forced air warmer is an efficient way to minimize intraoperative hypothermia during liver transplantation.



1. Sem Anesth 6:309-316, 1987