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Thermographic temperature measurement compared with pinprick and cold sensation in predicting the effectiveness of regional blocks.

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We designed this study to evaluate the usefulness of thermographic temperature measurement with an infrared camera, compared with patient response to cold and pinprick, as a means of assessing the success or failure of axillary blockades. Axillary blocks were performed on 25 patients undergoing surgery on the hand or forearm using a nerve stimulator technique with mepivacaine 1.5%. Pinprick and cold sensation were assessed on the operative site at 5-min intervals for 30 min. A thermographic image of the operative limb was recorded at similar time intervals. Thermographic images of the unblocked limb were taken before block placement and at 30 min. Temperature values at the operative site and unblocked limb were calculated from the thermographic images. **Results revealed that thermography had higher combined values for sensitivity, specificity, and positive and negative predictive values than both cold and pinprick at all time intervals**, with statistically significant differences at 15 min (thermography versus cold, $P = 0.006$; thermography versus pinprick, $P = 0.026$) and 30 min (thermography versus cold, $P = 0.038$; thermography versus pinprick, $P = 0.040$). For thermography as a method of block assessment, an optimal time of 15 min after mepivacaine local anesthetic injection gives the highest combined values for predicting a successful block ($P = 0.004$). We conclude that thermography provides an early and objective assessment of the success and failure of axillary regional blockades.