



Our result demonstrated the effectiveness of shorter-duration (5min) local warming for inducing venodilation for peripheral intravenous cannulation” Yamagami et al (2017).

Abstract:

BACKGROUND: Local warming is one of the most common venodilation techniques for achieving peripheral intravenous cannulation, but the time of application is unclear.

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OBJECTIVE: To compare the effectiveness of local warming applied for 5, 10, and 15min.

DESIGN: A prospective, observational study.

SETTING: A university in Japan.

PARTICIPANTS: In total, 40 healthy female volunteers aged 20-45 years were recruited via e-mail.

METHODS: Participants received 15min of local warming with a warmed heat pack ( $40\pm 2^{\circ}\text{C}$ ). The primary outcome was the cross-sectional area of the target vein at 5, 10, and 15min of

warming, which was measured after the intervention by blinded review using ultrasound. Secondary outcomes included forearm target site temperature at 5, 10, and 15min of local warming, which was measured with a temperature sensor and handheld thermometer.

**RESULTS:** Compared to outcomes before local warming, vein cross-sectional area at 5, 10, and 15min of warming significantly ( $p < 0.001$ ) increased by 2.8, 2.9, and 2.3mm<sup>2</sup>. The target site temperature increased by 6.9°C, 6.4°C, and 6.0°C, respectively. However, no significant differences were found in cross-sectional area among the time points of 5, 10, and 15min of local warming. The target site temperature at 15min of local warming was significantly ( $p < 0.001$ ) different than that at 5 and 10min. No adverse events occurred with local warming.

**CONCLUSION:** Compared with outcomes before local warming, vein size after warming for 5, 10, and 15min was significantly larger. No significant differences were found in vein size among the time points of 5, 10, and 15min of local warming. Our result demonstrated the effectiveness of shorter-duration (5min) local warming for inducing venodilation for peripheral intravenous cannulation.

Reference:

Yamagami, Y., Tsujimoto, T. and Inoue, T. (2017) How long should local warming for venodilation be used for peripheral intravenous cannulation? A prospective observational study. *International Journal of Nursing Studies*. November 12th. .

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