



To prospectively investigate the feasibility of using 2 small intravenous catheters for high-rate computed tomography (CT) contrast injection in patients lacking superficial veins capable of accommodating  $\leq 20$ -gauge catheters” Son et al (2018).

Abstract:

**OBJECTIVE:** To prospectively investigate the feasibility of using 2 small intravenous catheters for high-rate computed tomography (CT) contrast injection in patients lacking superficial veins capable of accommodating  $\leq 20$ -gauge catheters.

**MATERIALS AND METHODS:** Sixty-eight consecutive eligible adults referred for dynamic liver CT were enrolled; 58 had previously undergone liver CT, including 8 that experienced extravasation. Two 22- or 24-gauge catheters were placed in all patients after 2-5 venipunctures, and 2 mL/kg of contrast agent (370 mg I/mL) was split-administered through both catheters to achieve total flow rate of 4 mL/s. Patients’ experience and examination success rate, defined as uneventful scans completed at 4 mL/s or at  $< 4$  mL/s achieving standard image quality in all phases, were analyzed. Quantitative hepatic signal-to-noise and hepatic vascular contrast-to-noise ratios (CNRs) were compared with 30 control examinations scanned at 4 mL/s using an 18-gauge catheter.

**RESULTS:** One case each of extravasation and severe injection pain caused the examination to be aborted. Success rate was 88.2% (60/68; 54 patients scanned at 4 mL/s, 6 at 3.5-3.9

mL/s). Fifty-five of 58 patients (94.8%) that had past CT regarded the venipuncture as more tolerable than (n = 36) or similar to (n = 19) past experiences; 45 of 58 patients (77.6%) found contrast injection less painful than (n = 35) or similar to (n = 10) past experiences. When compared with control examinations, signal-to-noise ratio was similar in all phases ( $p \geq 0.502$ ), but the hepatic arterial CNR in arterial phase was slightly inferior ( $p \leq 0.047$ ).

**CONCLUSION:** Using 2 small intravenous catheters can effectively achieve high-rate CT contrast injection in patients lacking adequate superficial veins.

### Full Text

#### Reference:

Son, B.G., Kim, M.J., Park, M.H., Kim, K., Kim, J., Kim, S.Y., Lee, K.J., Choi, S.H., Kim, A.Y. and Park, S.H. (2018) Two Small Intravenous Catheters for High-Rate Contrast Medium Injection for Computed Tomography in Patients Lacking Superficial Veins to Accommodate a Large Catheter. *Korean Journal of Radiology*. 19(3), p.489-497.

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