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혈액투석 혈관 수술전 혈관평가를 위한 조영제 및 방사선 노출 감량 혈관조영술

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Digital Subtraction Venography Uusing a Stepping-gantry Technique for Venous Mapping Prior to Hemodialysis Vascular Access Creation

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Background: Upper extremity venography is one of the methods usually used in venous mapping for further optimization of the surgical strategy. With reduction in dose of contrast media and radiation, preservation of venographic image quality is valuable although a challenge in clinical applications.
Purpose: We introduce a new bolus tracking venography method using a stepping-gantry technique for venous mapping before hemodialysis vascular access creation.
Methods: Between January 2012 and October 2012, we analyzed the digital subtraction venography data sets of ten patients with end-stage renal disease (ESRD). Digital subtraction venography using a stepping-gantry technique represents a simple modification of the conventional stepping-gantry angiography applicable to the upper extremity. The examinations were reviewed by two radiologists in order to ascertain the opacification quality of the venographic images. We also assessed the amount of the dose of contrast media used as well as the radiation exposure dose during the venography.
Results: Two radiologists examined the opacification quality, and more than 84% of the analyzed veins of the patients were graded as good regarding visualization of the cephalic vein of the forearm, the cephalic and basilic veins of the upper arm, and the subclavian vein. The average dose of contrast medium used in ten patients was 10.6 mL (range 10-12 mL), and the mean accumulated dose during the examination was 3.5 mGy (range 2-5.2 mGy).
Conclusion: Preliminary findings indicates that single bolus stepping-gantry venography may be a valuable and alternative method for venous mapping prior to hemodialysis vascular access creation as it uses less contrast media and reduces the radiation dose.

Key Words: 혈관조영술, 혈관통로, 혈액투석
Venography, Vascular access, Hemodialysis