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Complications of iliofemoral deep venous thrombosis treatment with AngioJet pharmacomechanical thrombectomy system

We read with interest the article by Ascher et al.[1] Acute iliofemoral deep venous thrombosis is a significant cause of cardiovascular morbidity and mortality. Post-thrombotic syndrome is a major complication that results in significant disability and decreased quality of life for approximately half of patients with deep venous thrombosis who receive medical therapy alone.[2] Percutaneous pharmacomechanical thrombectomy devices in the venous system have had promising outcomes as an endovascular treatment option for these patients during the last years.[3]

An important complication of these pharmacomechanical thrombectomy systems is acute kidney injury after the procedure. The AngioJet system (Boston Scientific, Marlborough, Mass) with its high-pressure jet spray can cause destruction of red blood cells and acute hemolysis; hematuria is seen as an adverse event in patients treated with the AngioJet system.[4] In this study, two female patients had renal insufficiency, but there is no detailed information about this complication and these two patients' procedural data (creatinine clearance, hematocrit measures) before and after the intervention. Did the authors use renal protective treatments, including hydration and use of sodium bicarbonate, for all patients? What was the hospitalization duration and renal treatment strategy of these two patients? Did they require repeated hemodialysis?

The other issue is about the stenting procedure. Wallstents (Boston Scientific) used at the groin may increase stent thrombosis or fracture.[5] During the stenting procedure, did the authors keep in mind not to extend to the inguinal crease with the Wallstent that was seen in Fig 2?

We congratulate the authors on their valuable and safe treatment method. We would also like to hear the authors' opinions on these matters.

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Reply

We thank Aydın et al for their comments and questions regarding our manuscript, "Fast-track thrombolysis protocol: A single-session approach for acute iliofemoral deep venous thrombosis," which was recently presented at the Eastern Vascular Society meeting and is now published in the *Journal of Vascular Surgery: Venous and Lymphatic Disorders*.[1] In their response, the authors voice two concerns: acute kidney injury (AKI) after percutaneous mechanical thrombectomy (PMT) and risk of venous thrombosis in stenting across the inguinal ligament. We agree that these are two technical issues that must be addressed in the care of patients with acute iliofemoral deep venous thrombosis, especially those being treated with a single-session approach, such as the fast-track thrombolysis protocol (FTTP).[1]

AKI is a well-known complication of endovascular procedures involving PMT, probably due to hemolysis induced by the high-pressure saline jets of the rheolytic thrombectomy system as well as the nephrotoxic contrast agents used for angiography. To prevent or to lessen the severity of postoperative AKI, our group wishes to share a few "tips and tricks." All patients receive perioperative intravenous hydration with crystalloids. Sodium bicarbonate is not used by our group because of a lack of proven efficacy.[2] We routinely use <120 seconds of thrombectomy time (or milliliters of recovered aspirate) and always use diluted 50-50 contrast agent mixed with normal saline for each FTTP case. In an attempt to minimize resource and time utilization—a vital aspect of our single-session FTTP—we use the AngioJet (Boston Scientific, Marlborough, Mass) as a nonselective catheter for completion venography.