



Study Shows Increase in Risk of Renal Failure Following Lytic Therapy for Acute Deep Vein Thrombosis

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Rosemont, Illinois, July 26, 2021 – A large single-center retrospective study reveals the risk of acute kidney injury (AKI) following pharmacomechanical thrombolysis (PMT) for lower extremity deep vein thrombosis (DVT) is as high as 22%.

Pharmacomechanical thrombolysis is an established treatment for selected patients with acute deep vein thrombosis. Despite significant clinical success, hemolysis can lead to AKI with unknown longer-term implications. Researchers aimed to characterize the rate of AKI after PMT and identify those patients at the greatest risk.

“Recent evidence has suggested that catheter-direct therapy (CDT) in the setting of acute iliofemoral DVT improves vein patency and post-thrombotic severity with an equivocal risk of bleeding,” states principle author Karim M. Salem, MD, from the University of Pittsburgh.

“Catheter thrombolysis can be accomplished by dripping thrombolytic agents through a multiside-hole catheter over several hours or using PMT devices,” notes Salem. “Plenty of evidence has supported the use of PMT over catheter thrombolysis because PMT can achieve fast lytic therapy at a lower tissue plasminogen activator (tPA) dose. Aggressive PMT, however, can cause hemolysis, which can result in acute kidney injury.”

As reported in the July 2021 issue of the *Journal of Vascular Surgery: Venous and Lymphatic Disorders*, Salem’s team studied the records of 137 patients who underwent PMT for acute iliofemoral DVT at the University of Pittsburgh between 2007 and 2018.

Demographic details of these 137 patients included:

- Mean age 47+/-17 years
- Males 50%
- Pre-operative creatinine 0.99 mg/dL

Ultimately 30 of the 137 (22%) developed post-operative AKI, defined as a creatinine 1.5x baseline.

Multivariable analysis demonstrated three significant risks factors for the development of AKI:

- Bilateral DVT (odds ratio 4.35, P=.008)
- Single-session PMT (odds ratio 3.05, P=.046)
- Female sex (odds ratio 2.85, P=.046)

Of the 30 patients who did develop AKI, two progressed to severe renal failure (glomerular filtration rate <30ml/min) and one required long-term hemodialysis.

According to Salem, “Contemporary studies have reported the results of more rapid and aggressive thrombolysis protocols that can be completed in a single session. This approach has been associated with a development of acute renal failure owing to the hemolysis caused by the PMT devices.

“Our focus was to identify the preoperative factors that might influence our decision to pursue aggressive single-stage intervention versus multistage CDT. With the results of the present study, we avoid single-stage intervention in women with bilateral extensive DVT to minimize the risk of postoperative AKI.”

This study adds significant knowledge to understanding the risks of lytic therapy in patients with iliofemoral DVT.

Read the full article [here](#).

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**Article Date:** Monday, July 26, 2021

**Article Type:** Press Release