

# Temple study calls into question IVC filter effectiveness in DVT patients undergoing CDT

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Riyaz Bashir, MD, FACC, RVT, Professor of Medicine at the Lewis Katz School of Medicine at Temple University, and Director of Vascular and Endovascular Medicine at Temple University Hospital. Credit: Lewis Katz School of Medicine at Temple University

Deep vein thrombosis (DVT) is a common medical condition in which

blood clots develop in the deep veins of the body, often in the legs, thigh or pelvis. These clots can break loose and travel to the lungs and can cause a life-threatening pulmonary embolism (PE). Proximal DVT, which refers to a clot in the thigh or pelvis, has been shown to be associated with a higher risk for post-thrombotic syndrome (PTS), a painful condition characterized by swelling, redness and sores on the legs.

In an effort to reduce the high incidence of PTS seen in [patients](#) treated with a blood thinner alone, many physicians now utilize catheter-directed thrombolysis (CDT), which is a fluoroscopically guided, minimally invasive procedure in which an infusion catheter is used to deliver clot-busting drugs directly into the clot. CDT can potentially reestablish blood flow through a newly blocked vein.

Some physicians opt to also implant an inferior vena cava filter (IVCF) at the time of CDT in an attempt to prevent clots from breaking loose and migrating to the lungs during the procedure, causing a [pulmonary embolism](#). IVCFs are small, basket-like devices made of wire that are inserted into the inferior vena cava, a large vein that returns blood from the lower body to the heart and lungs, to capture the [blood clots](#) and prevent them from reaching the lungs.

However, the true benefit of IVCF placement at the time of CDT is unclear. A research team led by Riyaz Bashir, MD, FACC, RVT, Professor of Medicine at the Lewis Katz School of Medicine at Temple University (LKSOM), and Director of Vascular and Endovascular Medicine at Temple University Hospital (TUH), sought to address this question by examining nationwide utilization rates of IVCFs in patients undergoing CDT to assess contemporary trends and comparative outcomes to patients who do not undergo IVCF placement. The team's findings were published online July 16th and in the July 23rd issue of the journal *JACC: Cardiovascular Interventions*.

"Limited data exists on the effectiveness of IVCF use in patients undergoing CDT for the treatment of proximal DVT," said Dr. Bashir. "This study is noteworthy because it is the first to evaluate national trends and comparative outcomes related to this practice."

The research team used the National Inpatient Sample database to identify all patients in the U.S. with DVT that underwent CDT (with and without IVCF placement) in the United States between January 2005 and December 2013.

Among the team's findings:

- There was a steady increase in CDT use in patients diagnosed with DVT throughout the study period: from 2.3% in 2005 to 8.1% in 2013.
- The use of IVCFs in patients undergoing CDT for DVT remained steady at about 30% throughout the study period.
- IVCF use in patients undergoing CDT for DVT was not associated with any significant in-hospital mortality decrease compared to patients who did not receive an IVCF.
- IVCF use in patients undergoing CDT for DVT was associated with an increase in procedure-related hematoma formation (3.4% vs. 2.1%), in-hospital costs (\$104,049 vs. \$92,881) and length of stay (7.3 days vs. 6.9 days) compared to patients who did not receive an IVCF.

"On the basis of these results, we believe that IVCFs should not be routinely placed in patients undergoing CDT," added Dr. Bashir.

"Additional well-designed, randomized control trials are encouraged to elucidate the implications of IVCF placement in patients undergoing CDT."

**More information:** Othman S. Akhtar et al, Contemporary Trends and

Comparative Outcomes With Adjunctive Inferior Vena Cava Filter Placement in Patients Undergoing Catheter-Directed Thrombolysis for Deep Vein Thrombosis in the United States, *JACC: Cardiovascular Interventions* (2018). DOI: [10.1016/j.jcin.2018.04.048](https://doi.org/10.1016/j.jcin.2018.04.048)

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