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Contact:
Jane Grochowski, Publisher
Elsevier
Tel: 215-239-3712
ajmmedia@elsevier.com

Peripherally Inserted Central Catheters Can Cause Blood Clots in Lower Limbs

According to New Study in *The American Journal of Medicine*

Philadelphia, PA, August 17, 2015 – Peripherally inserted central catheters (PICCs), a type of IV typically inserted in a vein in the arm, are frequently used by healthcare professionals to obtain long-term central venous access in hospitalized patients. While there are numerous benefits associated with PICCs, a potential complication is deep vein thrombosis (DVT), or blood clots, in upper limbs. A new study of more than 70,000 patients in 48 Michigan hospitals indicates that PICC use is associated not only with upper-extremity DVT, but also with lower-extremity DVT. The results are published in *The American Journal of Medicine*.

“Prior studies had not assessed whether PICCs are independently associated with an increase in the risk of subsequent lower extremity DVT,” explained lead investigator Vineet Chopra, MD, MSc, Assistant Professor of Medicine, University of Michigan School of Medicine, and The Michigan Hospital Medicine Safety Consortium. “Our study confirmed that PICCs are strongly associated with DVT in upper limbs. However, what is novel and noteworthy in this study is that the presence of a PICC was also associated with an increased risk of lower-extremity DVT.”

Researchers used data from 76,242 hospitalized patients from 48 Michigan hospitals to review PICC placement, existing medical conditions, venous thrombosis risk factors, and thrombotic events within 90 days of hospital admission. A total of 3790 patients received a PICC during hospitalization.

Analysis revealed 876 thromboembolic events, including 208 upper-extremity DVTs, 372 lower-extremity DVTs and 296 pulmonary emboli. After adjusting for other risk factors, researchers found that PICC use was independently associated with a three-fold higher risk for any type of thromboembolic event compared to patients who had not received a PICC. Specifically for upper-extremity DVT, the risk was more than 10 times higher, while for lower-extremity DVT, the risk was nearly 50% higher. There was no increased risk of pulmonary embolism from PICC use.

The investigators also found that infusion of drugs to prevent venous thromboembolism did not reduce the risk of subsequent DVT. “Taken together, these findings suggest that the thrombotic burden associated with peripherally inserted central catheters may not be restricted to the extremity where the device resides or easily attenuated after insertion,” commented Dr. Chopra.

PICCs are not appropriate for every patient. Dr. Chopra and his co-investigators advise that, “Careful weighing of the risks and benefits of PICC use and consideration of alternative devices in patients at high risk of deep vein thrombosis seem essential. Of note, our data suggest that clinicians should not focus only on the extremity where a peripherally inserted central catheter resides, but the composite risk of venous thromboembolism among patients who receive a peripherally inserted central catheter.”

Short-term central venous catheters are placed in a patient’s neck or chest, while PICCs, are placed into a vein in the arm and threaded to the central vein, enabling them to be used for diverse tasks including the easy administration of drugs like antibiotics or chemotherapy, as well as hemodynamic monitoring.

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NOTES FOR EDITORS

“The Association Between PICC Use and Venous Thromboembolism in Upper and Lower Extremities,” by M. Todd Greene, PhD, MPH, Scott A. Flanders, MD, Scott C. Woller, MD, Steven J. Bernstein, MD, MPH, and Vineet Chopra, MD, MSc (DOI: http://dx.doi.org/10.1016/j.amjmed.2015.03.028). It appears online ahead of *The American Journal of Medicine,* Volume 128, Issue 9 (September 2015) published by Elsevier.

Full text of this article is available to credentialed journalists upon request. Contact Jane Grochowski at 215-239-3712 or ajmmedia@elsevier.com to obtain copies. Journalists wishing to interview Dr. Chopra may contact him directly at vineetc@med.umich.edu.

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