Commentary: Routine lower extremity venous thromboembolism screening following lung transplantation: Seek and ye shall find

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Disclosures: Authors have nothing to disclose with regard to commercial support.

Received for publication Sept 16, 2019; revisions received Sept 16, 2019; accepted for publication Sept 17, 2019; available ahead of print Oct 28, 2019.

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J Thorac Cardiovasc Surg 2020;159:1152-3

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2019.09.105>

Venous duplex images from USC Vascular Laboratory (unidentified).

Central Message

Routine screening for deep venous thromboembolism following lung transplantation improves thrombus detection and allows for early intervention

See Article page 1142.

In this issue of the *Journal*, Jorge and colleagues¹ describe a study of 1141 patients at the University of Pittsburgh who underwent routine deep vein thrombosis (DVT) screening following lung transplantation at their institution between January 1, 2005, and December 31, 2014. They describe the incidence and predisposing risks for DVT in these patients. Patients were separated into 2 cohorts, those who were not routinely screened for DVT and those who were screened after lung transplantation when a routine DVT screening protocol was initiated in 2008. Strengths of this study are in its power at 1141 lung transplants and its origin from a reputable, high-volume lung transplant research center. Its weakness relates to a single-institution, retrospective study.

DVT rates before and after routine screening were 8.8% (36 DVT of 412 transplants) and 17.3% (126 of 729 transplants), respectively. Although these rates were significantly different ($P < .01$), the observed DVT incidence per year was not significantly different across the 6 years of universal routine DVT screening. Screening was conducted on days 0 and 14, a postoperative period when DVT commonly occurs. Patients were followed for 90 postoperative days. When DVT was detected, the patient received standard anticoagulation or an inferior vena cava filter, if anticoagulation was not tolerated. There were no observed DVT differences at day 0 and 14 in the era before routine screening protocols; incidences were 3.8% and 3.8%, respectively. The cohort after establishment of DVT screening protocol at similar points were 8.7% and 3.7%, respectively. As a point of reference, the risk of DVT in other major thoracic, vascular, and cardiac procedures is generally as follows: cardiac surgery 2% to 5%, heart transplantation 14%, lung transplantation 8% to 27%, vascular 0.99%, and pneumonectomy 3.6% to 8.9%.²⁻⁵

Standard risks for DVT in lung transplantation include advanced age, obesity, diabetes mellitus, pneumonia, prothrombotic state, immobility, cardiopulmonary bypass, and immunotherapy (eg, sirolimus, everolimus).⁵ A surprising observation from this study was that patients who quit smoking versus those that were never smokers developed less DVT. The conclusions of this study were that the rate of DVT diagnosis significantly increased with adoption of a routine screening protocol. In addition, hypercholesterolemia and prolonged length of stay predisposed to the development of DVT in patients undergoing lung transplant.

Advances in medicine are made with determination, dedication, and perseverance but also with observation and sometimes even serendipity. Our impression is that DVT following lung transplantation is far more prevalent than what has been reported. The paper by Jorge and colleagues¹ validates our concerns and provides impetus for routine screening and early intervention for DVT after lung transplantation.

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