Patients with metastatic cancer may need stronger anti-coagulation therapy following bone lesion surgery

September 19 2015

Jefferson researchers identified a high risk for venous thromboembolism (VTE), or blood clots, following surgery for long-bone reconstruction in patients with metastatic cancer. They published the results in the *Journal of Bone and Joint Surgery*.

"Our study shows not only that a stronger anti-coagulation therapy may be warranted for these patients, but also that each case needs individualized attention," said senior author John A. Abraham, M.D., Associate Professor of Orthopedic Surgery and Radiation Oncology in the Sidney Kimmel Medical College at Thomas Jefferson University, Director of the Jefferson Sarcoma and Bone Tumor Center, and orthopedic surgeon specializing in orthopedic oncology at Rothman Institute at Jefferson.

The team retrospectively reviewed 336 cases where patients required intramedullary nailing for metastatic bone lesions, during which a surgeon places a metal rod into the bone to provide support. The study revealed that 24 patients (7.1 percent) developed thromboembolism in the 90 days after surgery and found a low incidence of post-operative wound complications (3.1 percent), suggesting a different anti-coagulation protocol may be tolerated.

"Venous thromboembolism, including pulmonary embolism and symptomatic deep vein thrombosis, can have devastating consequences

for patients," said co-author Geno J. Merli, M.D., Professor of Medicine and Surgery in the Sidney Kimmel Medical College at Thomas Jefferson University; Co-Director of Jefferson Vascular Center; and expert in anticoagulation therapy. "Our findings underscore the importance of evaluating each patient for risk factors to select the most appropriate and effective anticoagulation therapy. In addition, patients with metastatic cancer may require extended prophylaxis to prevent deep vein thrombosis and pulmonary embolism."

"We also found that 66 percent of the patients who developed blood clots 90 days after surgery also had a primary cancer of the lung," Dr. Abraham said. "This suggests the risk for venous thromboembolism is different depending on the primary cancer. This will require a change in our way of thinking as orthopedic surgeons."

Dr. Abraham's research revealed that patients who did not receive radiation therapy after surgery had a slightly decreased risk of developing a blood clot, which approached statistical significance.

"The implications of this study are quite broad. It demonstrates that skeletal metastatic disease is not just one simple entity, but rather a complex process that has specific effects associated with each individual primary disease," said Atrayee Basu-Mallick, M.D., Clinical Assistant Professor in the Department of Medical Oncology, Sidney Kimmel Cancer Center at Thomas Jefferson University, who was not involved in the study. "It also highlights the importance of having a team approach to skeletal metastases, which includes the oncologic, medical, radiation, and surgical teams. It should change the way most cancer centers approach skeletal metastases."

Dr. Basu-Mallick, who is also the Medical Program Director of the Center for Sarcoma and Bone Tumor Oncology at Jefferson, pointed out that more studies are needed to prove that a longer duration of

anticoagulation is needed for patients with skeletal metastases after surgery to help reduce rates of thromboembolic events in this vulnerable population.

In light of these findings, Dr. Abraham and his team recommend physicians consider a patient's primary cancer while selecting the anti-coagulation therapy following surgery for intramedullary nailing and close coordination with the patient's medical oncology team.

More information: *Journal of Bone and Joint Surgery*, jbjs.org/content/97/18/1503

Provided by Thomas Jefferson University