

Study Finds New Risk Factors for Postop VTE

BY MITCHEL L. ZOLER
Philadelphia Bureau

PHILADELPHIA — Pneumonia was one of five new risk factors for postoperative venous thromboembolism identified in an analysis of more than 75,000 patients.

Other new risk factors for venous thromboembolism (VTE) were the need for a blood transfusion because of bleeding, renal insufficiency, urinary tract infection, and a low level of serum albumin, Dr. Chethan Gangireddy said at the Vascular Annual Meeting.

"These newly described risk factors can aid in further stratifying a patient's risk for postoperative VTE," said Dr. Gangireddy, a surgeon at the University of Michigan in Ann Arbor.

The analysis included data collected by the National Surgical Quality Improvement Program of the Department of Veterans Affairs system during 1996-2001. The database included all of the more than 118,000 patients who had surgery at 114 hospitals for one of the nine most common operations done at these hospitals; complete data were available for 75,711 patients.

The overall incidence of VTE was 0.7%, but the incidence varied significantly based on the type of surgery. Carotid endarterectomy carried the lowest risk for VTE, with a 0.14% postoperative risk. Total hip arthroplasty posed the biggest risk for VTE, with a 1.3% postoperative rate.

In a multivariate

analysis that evaluated the independent risk added by many different clinical and demographic factors, pneumonia was the strongest risk factor, boosting the risk of VTE 2.7-fold. Several other risk factors each boosted the risk for VTE by about twofold (see table), and three factors were found to reduce VTE risk.

In an analysis of the two most common manifestations of VTE, the list of significant risk factors for causing deep vein thrombosis was found to be different from the list linked with pulmonary embolism. The top risks for DVT were need for a transfusion due to bleeding (3.3-fold increased risk), pneumonia (2.5-fold increased risk), and urinary tract infection (1.7-fold increased risk).

For pulmonary embolism, the top risk factor was cardiac arrest (7.6-fold increased risk), followed by pneumonia (3.9-fold increased risk) and need for a transfusion (2.4-fold increased risk).

Another finding was that patients with VTE had a 2.4-fold increased risk of death, compared with all other patients, Dr. Gangireddy said. ■

Independent Risk Factors For VTE After Surgery

	Hazard Ratio
Pneumonia	2.7
Cardiac arrest	2.5
Myocardial infarction	2.4
Blood transfusion because of bleeding	2.3
Renal insufficiency	1.9
Urinary tract infection	1.8
Hemodialysis for renal failure	0.23 (protective)
Diabetes	0.75 (protective)
High level of serum albumin	0.84 (protective)

Note: Based on data from 75,711 patients.
Source: Dr. Gangireddy

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Prophylaxis Cuts Risk of Deep Vein Thrombosis in Ca Surgery

BY JANE SALODOF MACNEIL
Southwest Bureau

SAN DIEGO — Pharmacologic prophylaxis can sharply reduce the risk of deep venous thrombosis when cancer patients undergo surgery, Dr. Michael J. Leonardi reported at a symposium sponsored by the Society of Surgical Oncology.

The deep venous thrombosis (DVT) rate falls from 35% without prophylaxis to 12% when surgical oncology patients are given heparin, according to Dr. Leonardi of the University of California, Los Angeles. A combination of mechanical prophylaxis with heparin further reduces the DVT rate to just 5%.

"Cancer patients need some form of prophylaxis," Dr. Leonardi said in an interview after his review of data from dozens of randomized, controlled trials. "If bleeding risk is not a concern," he added, "pharmacological prophylaxis is better than mechanical prophylaxis, and combination therapy has been shown to be even more effective."

Dr. Leonardi and his colleagues in the UCLA surgery department undertook their study to help institutions develop guidelines for DVT. They searched the Medline database for English-language trials and found 55 randomized, controlled trials published from 1966 to 2005 on DVT prophylaxis in general surgery. Among these, 26 trials reported outcomes for 7,639 cancer patients, Dr. Leonardi said.

Colorectal and major abdominal surgical procedures accounted for 39% and 38% of cases, respectively. Upper gastrointestinal and small bowel operations were the next most common at 11%, followed by gynecologic surgery at 3%.

After a review of the wide variety of patients and surgeons in these trials, he said the best prophylaxis for individual cancers is still not known. For example, not even one randomized controlled trial was found

that evaluated DVT prophylaxis in breast cancer patients. The incidence of DVT in breast cancer "is probably not as high as in some other cancers, but because breast cancer is so common, a lot of DVTs are associated with it," he said.

Among the findings from the analysis, Dr. Leonardi reported that:

► **DVT rates vary with the detection method used.** Venography was the most



'If bleeding risk is not a concern, pharmacological prophylaxis is better than mechanical prophylaxis.'

DR. LEONARDI

sensitive method, and ultrasound the least.

► **Higher heparin doses are more effective than lower doses.** DVT rates were 8% for higher doses and 14% for lower doses of the forms of heparin in 17 trials with a total of 4,005 patients.

► **Low-molecular-weight heparin and low-weight unfractionated heparin are equally effective.** Both cut DVT rates to 8% at high doses in the 17 trials just cited. At low doses, the rate was 14% for LMW heparin and 13% for unfractionated heparin.

► **Heparin reduces the rate of proximal DVTs.** The rate went from 41% to 13% in nine trials reporting on 284 patients with DVTs. Location was unaffected by the use of LMW vs. unfractionated heparin.

► **Major complications occur in only 1% of cases with pharmacologic prophylaxis.** Based on seven trials, minor complications occurred in 10% of patients and major complications in 1%, he reported. There was no difference between LMW and unfractionated heparin. In four trials, 3% of patients discontinued prophylaxis. ■

Compression Stockings on Long Flights Reduce DVT Risk

BY DOUG BRUNK
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Wearing compression stockings during airplane flights that last 7 hours or longer appears to reduce the risk of asymptomatic deep vein thrombosis, results of a Cochrane Library Review indicate.

In a review of 10 trials including a total of 2,637 passengers, 50 passengers developed symptomless deep vein thrombosis (DVT). Of them, 47 were not wearing compression stockings and 3 were wearing stockings, Mike Clarke, Ph.D., director of the UK Cochrane Center in Oxford, and his colleagues wrote.

"Wearing stockings might reduce the incidence of this outcome from a few tens per thousand passengers, to two or three per thousand," they wrote. "Passengers who wear stockings will also experience less edema in their legs. However, this re-

view is unable to identify whether these effects of wearing stockings translate into effects on outcomes such as death, pulmonary embolus, and symptomatic DVT."

The researchers searched the Cochrane Centre Register of Controlled Trials, Medline, and other resources to locate randomized, controlled trials on the impact of compression stockings, compared with no stockings, on the incidence of DVT in passengers on flights lasting at least 4 hours.

Ten trials were identified: nine that involved 2,821 passengers and compared wearing stockings on both legs with not wearing them, and one trial that involved 35 passengers and compared wearing a stocking on one leg for the outbound

flight with wearing one on the other leg for the return flight. All flights lasted at least 7 hours, and most stockings used in the trials were below the knee (Cochrane Database Syst. Rev. 2006;2:CD004002).

Of the nine trials involving 2,821 passengers, seven recruited a total of 1,548 passengers who were considered to be at low to medium risk of developing DVT, whereas the other two trials recruited 1,273 passengers who were considered to be at high risk.

Complete follow-up data were available for 2,637 passengers. Among these, 50 developed a symptomless DVT that was detected by either ultrasound or D-dimer testing and fibrinogen testing. Of these 50

passengers, 47 were not wearing compression stockings, and 3 were wearing stockings.

The overall incidence of symptomless DVT was 2.43% in the two trials of passengers considered to be at high risk vs. 1.45% in the seven trials of passengers considered to be at low or medium risk.

Six of the trials also showed that compression stockings significantly reduced leg edema in those who wore them.

"This review shows that the question of the effects on symptomless DVT of wearing versus not wearing compression stockings in the types of people studied in these trials should now be regarded as answered," Dr. Clarke and his associates concluded.

"Further research may be justified to investigate the relative effects of different strengths of stockings or of stockings compared to other preventative strategies," they added. ■

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