A Randomized Trial of Rosuvastatin in the Prevention of Venous Thromboembolism

Conclusion: In healthy persons, rosuvastatin reduces the occurrence of symptomatic venous thromboembolism.

Summary: Some observational studies have suggested a decreased risk of venous thromboembolism (VTE) in patients treated with statins (Ann Intern Med 2000;132:689-96, and Arch Intern Med 2001;161:1405-10). Other studies, however, have shown no association between the use of statins and venous thrombosis (Br J Clin Pharm 2008;67:99-109). The current study is a subanalysis of the Justification of the Use of Statins in Prevention: An Intervention Trial Evaluating Rosuvastatin (JUPITER). JUPITER examined whether or not rosuvastatin, 20 mg daily, compared with placebo, would reduce the rates of major cardiovascular events. The occurrence of VTE was a protocol-specified secondary end point of JUPITER.

The study randomly assigned 17,802 apparently healthy men and women to receive rosuvastatin, 20 mg daily, or placebo. Patients were monitored for the first occurrence of pulmonary embolism (PE) or deep venous thrombosis (DVT). Data were analyzed on an intention-to-treat basis. Median follow-up was 1.9 years (maximum, 5.0 years). Symptomatic VTE occurred in 94 participants: 60 in the placebo group and 34 in the rosuvastatin group. Rates of VTE were 0.18/100 person-years in the rosuvastatin group and 0.06/100 person-years in the placebo group (HR, 0.37; 95% confidence interval [CI], 0.23-0.60; P = .0007) and 0.32/100 person-years in the placebo group. For unprovoked VTE, that is, VTE occurring in the absence of known malignant conditions, surgery, trauma, or hospitalization, the hazard ratio (HR) was 0.31 (0.19-0.49; P = .0002) in the rosuvastatin group and 0.17/100 person-years in the placebo group (HR, 0.61; 95% CI, 0.35-1.09; P = .09). Rates for provoked VTE were 0.08/100 person-years in the rosuvastatin group and 0.16/100 person-years in the placebo group (HR, 0.52; 95% CI, 0.28-0.96; P = .03). Rates of PE did not differ between the rosuvastatin group and placebo groups. Rates of DVT were 0.09/100 patient-years in the rosuvastatin group and 0.20/100 patient-years in the placebo group (HR, 0.45; 95% CI, 0.25-0.79; P = .004). There were no differences between treatment groups in the rates of bleeding episodes.

Comment: Venous and arterial thromboses carry some risk factors that are shared. The nature and extent of these shared pathways and whether demonstrated efficacy for prevention of one condition can translate to the other is controversial. This study suggests another potentially important pleiotropic effect of statin medications. This study was prospective and double-blind, and prespecified VTE as an end point, and therefore has considerable strength. However, the study only occurred in patients who were able to be healthy, there is relatively limited follow-up, and it does not allow for evaluation of the relationship between the dose of statin and risk of VTE. Future data, particularly on the ability of statin medications to decrease VTE in higher-risk patients will be interesting.

Associations of Borderline and Low Normal Ankle-Brachial Index Values With Functional Decline at 5-Year Follow-Up. The WALCS (Walking and Leg Circulation Study)

Conclusion: A “low-normal” ankle-brachial index (ABI) has an increased incidence of late mobility loss compared with a normal ankle-brachial index (ABI).

Summary: An estimated 8 million persons in the United States have peripheral arterial disease (PAD) of the lower extremities. PAD is defined as an ankle-brachial index (ABI) <0.9. These patients have increased rates of functional decline and greater functional impairment than those without PAD. In this study, the authors sought to ascertain the possible association between functional decline and the presence of borderline or low-normal ABI values. They hypothesized that patients with borderline or low-normal baseline ABI values would have slower rates of functional decline than patients and that functional decline would be greater than in persons with a normal ABI. Participants in this study were part of the Walking and Leg Circulation Study (WALCS) study to identify predictors of functional decline in persons with and without PAD. Of the 666 study participants, 412 had PAD. Participants were categorized as having severe PAD (ABI <0.5), moderate (ABI 0.5-0.69), mild (ABI 0.7-0.89), borderline to low-normal (ABI 0.9-1.09), or normal without PAD (ABI 1.10-1.30). Mobility loss was defined as loss of ability to walk one-quarter mile or walk up and down one flight of stairs without assistance in individuals who did not have baseline mobility impair-

ment. Participants unable to walk for 6 minutes were defined as stopping during a 6-minute walk test during a follow-up examination when they were able to complete the 6-minute walk test on their initial study. Outcomes were assessed annually for 5 years, and results were adjusted for age, race, comorbidities, gender, and other confounders. Hazard ratios for mobility loss according to ABI category were severe PAD, 4.16 (95% confidence interval [CI], 1.58-10.92); moderate PAD, 3.82 (95% CI, 1.66-8.81); mild PAD, 3.22 (95% CI, 1.42-7.21); borderline PAD, 3.07 (95% CI, 1.21-7.84); and low-normal PAD, 2.61 (95% CI, 1.08-6.32; P trend = .0018). Associations for becoming unable to walk for 6 minutes continuously were similar (P trend <.0001).

Comment: ABI values <0.9 are both specific and sensitive for a diagnosis of PAD. The findings here suggest that patients with low-normal or borderline ABI values have higher rates of functional decline than patients with truly normal ABIs (1.1 to 1.3). These results may reflect a higher rate of progression of lower extremity atherosclerosis among patients with low-normal and borderline ABI values. Alternatively, low-normal and borderline ABI values may be markers for atherosclerosis elsewhere or other comorbidities that can influence mobility and performance on the 6-minute walk test. What is clear is that functional impairment is associated with even very mild PAD.

Diagnoses of “non-acute” vascular prosthesis infection using 18F-FDG PET/CT: our experience with 96 prostheses

Conclusion: Positron emission tomography (PET)/computed tomography (CT) imaging is an established diagnostic modality for suspected vascular prosthetic graft infection (VPGI).

Summary: The use of hybrid imaging technology is increasing; in particular, the combination of PET and CT using 18F-fluorodeoxyglucose (18F-FDG) has become a well-accepted tool for diagnosis of cancer. Hybrid technolmies provide a combination of high spatial resolution morphologic CT data with functional PET data in one image. Tissues with high metabolic activity are characterized by cumulative FDG uptake. 18F-FDG PET also has a high sensitivity for diagnosis of infection and inflammation. The purpose of this study was to test the accuracy of FDG PET/CT in the diagnosis of VPGI. The authors sought to evaluate this technology in a set of patients with possible low-grade VPGIs and nonacute presentations. They performed PET/CT prospectively in 76 consecutive patients (52 men, 24 women) with 96 prosthetic grafts with suspected VPGI. Studies were performed between May 2004 and May 2007. Patients were recruited from a large tertiary vascular surgery referral center in Czechoslovakia. The presence and intensity of focal and diffuse FDG uptake was analyzed from the PET/CT scans. Also analyzed was the presence of an anatomic feature, presence of an irregular boundary of infiltration, combinations of these, and an uptake ratio between the graft and blood background. PET/CT findings were then compared with operative and histopathologic findings or clinical follow-up at 6 months.

Of the assessed parameters, only an irregular graft boundary and focal FDG uptake were significant predictors of VPGI. If focal intense FDG uptake and an irregular boundary of the lesion were both present on the CT scan, this correlated with a 97% probability of a VPGI. Smooth lesion boundaries and no focal FDG uptake predicted a probability of VPGI of <5%. When there was inhomogeneous focal FDG uptake (18 of the 96 patients), an irregular boundary on the CT scan aided decision making with a probability of 28% for a VPGI if the boundary was smooth vs a probability of 77% for VPGI if the boundary was irregular. In this study, 87.5% of the prosthetic grafts evaluated (55 of 96) eventually had a clinical diagnosis of VPGI. The presence of intense focal FDG uptake was specific for VPGI in 92.7% of prostheses and had a very high positive predictive value of 93.5% for predicting VPGI.

Comment: Low-grade infection of a prosthetic graft can be difficult to diagnose. The authors’ technique of combining FDG PET/CT provides anatomic, functional, and metabolic data in a single session. CT scanning has only about 55% sensitivity with respect to detecting low-grade VPGI. The hybrid imaging technique presented here appears to offer a substantial improvement over CT scanning alone in the detection of low-grade VPGI.

Improved Long-Term Survival After Abdominal Aortic Aneurysm Repair

Conclusion: Despite a change in case-mix toward older patients with increased comorbidity, long-term survival after repair of an intact abdominal