

# Between a Rock and a Hard Place: Navigating the Obstacles to Safe and Effective Anticoagulation

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Too often, our patients with thrombosis bleed as a result of anticoagulant therapy, or our patients at high risk for bleeding develop a thromboembolic event. Our consultative practices are filled with such “bleeding clotters or clotting bleeders” for whom the therapeutic approach requires navigating between the Scylla and Charybdis of hemorrhage and thrombosis. While we are unable as yet to report the development of the perfect antithrombotic — one that prevents thrombosis while causing no increased risk of hemorrhage — we are developing tools to better help us navigate the treacherous therapeutic waters.

Yesterday at the Education Session on Antithrombotic Therapy (to be repeated today at 9:30 a.m.), we learned about several such tools. Dr. Larry Leung started the program with a lively discussion on the perioperative evaluation of patients with potential bleeding diatheses. He touched on the evaluation of a prolonged aPTT, focusing on deficiencies of Factors XI, VIII, and IX, as well as deficiencies of the contact factors. The “serious and sinister” acquired FVIII inhibitor was discussed, as was acquired and congenital von Willebrand disease. Finally, a detailed discussion of the hemorrhagic diathesis caused by cardiopulmonary bypass was provided, including an illustrative case of a patient with an acquired FV antibody. Interesting data on the increased risk of renal failure and cardiovascular thrombosis in patients treated with aprotinin was discussed.

Next, Dr. William Geerts was to have tackled the thorny issue of thromboprophylaxis in high-risk patients, but referred audience members to his article in *Hematology 2006*, the ASH Education Program Book. Instead, Dr. Geerts focused on a series of frequently asked questions in thromboprophylaxis, including issues of mechanical thromboprophylaxis, contraindications to anticoagulation, Q8- or Q12-hr dosing of low-dose heparin, pre-operative use of anticoagulation, issues surrounding epidural/spinal anesthesia in patients receiving anticoagulant thromboprophylaxis, optimal duration of thromboprophylaxis, choosing between UFH or LMWH in a particular patient, and whether IVC filters should be used as prophylaxis (the answer was NO). Dr. Brian Gage concluded the program with a very interesting discussion of pharmacogenomic-based coumarin therapy. He emphasized that problems with coumadin over- or under-dosing occur most frequently shortly after initiation of coumadin therapy. This is because it has been impossible to predict the anticipated therapeutic dose for any given patient. Recently, it has been discovered that single nucleotide polymorphisms (SNPS) in genes for enzymes within the cytochrome P450 complex as well as genes for vitamin K epoxide reductase and prothrombin can affect coumadin metabolism and sensitivity, and thus coumadin dosing. Pharmacogenomic-based dosing algorithms for coumadin have been developed and seem to reduce some of the variability in coumadin dose. While not yet widely available, this approach provides hope that many of the early hemorrhagic complications of warfarin therapy may be avoided.

Individuals interested in thrombosis and antithrombotic therapy are also directed to today’s Scientific Committee Sessions on Thrombosis and Vascular Biology: Disease Models of Thrombosis at 7:30 a.m. in Room W224, and Applying the Brakes to Platelet Thrombus Formation: Mechanisms Halting Activation and Adhesion at 9:30 a.m. in Hall 5. Additionally, in today’s last plenary presentation, Dr. Harry Buller will discuss “Evaluation of Once Weekly Subcutaneous Idrapaarinix Versus Standard Therapy with Heparin and Vitamin K Antagonists in the Treatment of Deep-Vein Thrombosis or Pulmonary Embolism—The Van Gogh Investigators.” Finally, don’t miss Tuesday afternoon’s Special Session on Hemostasis and Thrombosis.