

## Thrombosis and Hemostasis

### Poster 38. Warfarin INR Patterns After Total Knee Arthroplasty

**Objectives:** Warfarin is commonly used for anticoagulation following total knee arthroplasty (TKA). This retrospective analysis examined an electronic medical record database for trends in patients' INR levels during post-TKA warfarin treatment.

**Methods:** Patients who had undergone TKA from January 1, 2004 to January 31, 2009 and had received warfarin within 3 days of surgery were followed for up to 90 days. The analysis primarily focused on day 5 onward, since warfarin takes several days to reach therapeutic effect. INR results were categorized based on the American College of Chest Physicians (ACCP) guidelines: in range (2-3), below range (<2.0), or above range (>3). Time to first in-range INR was taken as days from start of warfarin for patients with at least 1 in-range INR.

**Results:** 1787 patients were included in the study. In the first 4 days after TKA, 82.2% of patients had no INR levels within the ACCP-recommended therapeutic range. Of 871 patients receiving warfarin for >5 days and with >2 available INR measurements on or after day 5, 69% had >1 INR in the therapeutic range, and 94% had >1 INR below range. Patients had a median of 1 in-range INR, 3 below-range, and 0 above-range. Almost two thirds (65%) of INR values were below range. The median time to first in-range INR was 6 days.

**Conclusion:** In this retrospective study, patients' INR levels showed considerable variability. Given the high proportion of INR values below the ACCP-recommended range, improved anticoagulation management is needed to ensure that patients are adequately protected from venous thromboembolism.

**Presenter:** Beth Nordstrom, United BioSource Corporation

### Poster 39. Medication Allergy May Be a Pre-Clinical Predictor in Patients Who Develop Immune Mediated Heparin-Induced Thrombocytopenia

**Introduction:** Immune-mediated heparin induced thrombocytopenia (HIT) type II is an adverse drug reaction caused by heparin-dependent IgG antibodies that activate platelets which can cause thrombotic events. The diagnosis of HIT is dependent upon clinical criteria, serial platelet count measurements and serological analysis. To date, there is a lack of pre-clinical predictors typifying HIT patients. We hypothesize that given the immune-mediated nature of HIT, a history of drug allergy may characterize such patients.

**Design and Method:** This is a retrospective chart review comparing history of medication allergy in patients with positive HIT confirmed by serological testing (platelet factor 4 ELISA assay) to those who tested negative.  $\chi$  square and Fisher's exact test will be used for statistical analysis.

**Result:** Between 2002 and 2003, a total of 11 serological positive and 74 serological negative HIT patients were identified. 6 of the 11 serological positive patients (54.54%) reported allergy to at least one or more medications versus 14 out of 74 (16.47%) serological negative patients;  $p=0.02$ . Allergies to penicillin, sulfa and iodine appear to be the most predominant.

**Conclusion:** We found patients with serological positive HIT have a higher probability of allergic drug reaction than those who test negative. Medication allergy may be a pre-clinical characteristic of such patients.

**Presenter:** Yung-Wei Chi, Ochsner Heart and Vascular Institute

### Poster 40. Venous Thromboembolism Associated with an IntraVaginal Contraceptive Device: Report of Three Cases

**Background:** Oral contraceptives increase the risk of venous thromboembolism (VTE). Alternative routes of delivery have been developed in an attempt to reduce this risk. NuvaRing® is an intraVaginal contraceptive ring that releases ethinyl estradiol and etonorgestrel, but little is known regarding its risk for the development of VTE. We present 3 patients, with no prior or familial history of thrombosis that developed unprovoked VTE. All three share a common risk factor: the use of this intraVaginal estrogen delivery device at the time of their acute thrombotic event.

**Case 1:** 29 y/o female presented with epigastric pain 4 months after surgery for cecal volvulus. She had no history of VTE and her only medication was the NuvaRing®. She was found to have portal vein thrombosis. A hypercoagulable workup was negative.

**Case 2:** 30 y/o female with 2 near syncopal episodes, diagnosed with pulmonary embolism (PE) and bilateral deep vein thrombosis. She was found to be heterozygous for FV Leiden. She started using the NuvaRing® a few months prior to her thrombosis.

**Case 3:** 27 y/o female developed an acute unprovoked PE several months after starting NuvaRing®. A hypercoagulable panel was negative.

**Conclusions:** Patients using intraVaginal delivery of estrogen as contraception are potentially at risk for VTE. We report three cases. To our knowledge only one other case has been reported in a patient using this contraceptive device (mesenteric vein thrombosis). Patients must be aware of the potential for thrombosis when opting for an intraVaginal contraceptive ring.

**Presenter:** Ana I. Casanegra, The Cleveland Clinic

### Poster 41. Outcome with Inferior Vena Cava Filters

**Background:** The purpose of this study is to evaluate inferior vena cava (IVC) filters in terms of outcome and complications according to whether anticoagulants were administered.

**Methods:** Records of 271 patients with retrievable (n=144) and permanent (n=127) IVC filters inserted between January 2004 to September 2008 at a community/teaching hospital were reviewed.

**Results:** Non-bleeding complications of retrievable IVC filters occurred in 12 of 144 (8%) patients, and 16 of 127 (13%) among patients with permanent IVC filters. The incidence of thrombotic complications (new DVT, PE, or IVC thrombosis) was similar in those who received anticoagulants for the entire duration of retrievable IVC filter insertion, 5 of 62 (8%) and those who did not receive anticoagulants 4 of 47 (8.5%). Similarly, the incidence of thrombotic complications (new DVT, PE, or IVC thrombosis) was similar in those who received anticoagulants following