(P < 0.0002, chi-square; range from 0.5 to 6.6 events per 100 patient years) confirming significant heterogeneity in the results. In the assembled cohort of 3998 patients there were 174 admissions in 6 months, of which 117 included some evidence of warfarin related bleeding. Applying the criteria from the 12 different studies resulted in a range of 24 to 117 of these events being classified as “major bleeds”. The 3 studies with most restrictive definitions reported from 0.5 to 1.1 events per 100 patient years, compared with from 1.5 to 2.8 events per 100 patient years for the 4 studies with least restrictive definitions.

CONCLUSIONS: It is essential for future outcomes research in anticoagulant therapy that consistent definitions of major adverse outcomes are applied. The inconsistent definitions used in the 12 published studies reviewed make it impossible to assess the impact of other differences between studies, for example in INR range or % of time within range.

**PCV11**

**EFFECTIVENESS OF CLINICAL PATHWAYS FOR PATIENTS WITH HEART FAILURE**

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OBJECTIVES: To evaluate the effectiveness of the care provided to patients with heart failure through the implementation of clinical pathways at the hospital “The Holy Family” in Novafeltria (Italy). METHODS: We performed a pre-post analysis model to evaluate the effect of the application of clinical pathways on process indicators, outcome indicators and on the costs sustained to treat the patients. We compared the results obtained treating the patients according to the clinical pathway with the results obtained before implementing the pathway. We studied quantitative variables with t Student test or Wilcoxon test, qualitative variables with X2 test. RESULTS: Two hundred forty-six cases were included in our study. These subjects were all the patients admitted for heart failure to the hospital and treated by the staff. We compared the age, the sex and the disease staging (NYHA scores at admission) of the patients of the 2 groups and we did not find any significant difference. After the implementation of the pathway we observed a significant improvement of the core processes. We observed a reduction of the rate unscheduled readmissions within 31 days from discharge (from 6.74% to 2.94%; p > 0.05), of the average length of stay (from 10.89 days to 7.86; p < 0.05) and of inpatients’ mortality (from 17.42% to 4.41%; p < 0.01). The average costs for patient increased from 2.399 US$ to 2.596 US$ (p > 0.05). CONCLUSION: Our primary finding was that the implementation of the clinical pathway for heart failure improved patients’ outcomes and the quality of the core processes. Our results also showed that this was possible without incrementing the costs. This study has important limitations too. The initial measurement occurred a year before the full implementation of the pathways. Thus, it is possible that some of the observed improvement represented a natural drift toward higher performance.

**PCV12**

**ACHIEVEMENT OF THE EUROPEAN ATHEROSCLEROSIS SOCIETY LDL-C TARGET BY HYPERCHOLESTEROLAEMIC PATIENTS RECEIVING ROSUVASTATIN COMPARED TO ATORVASTATIN, PRAVASTATIN OR SIMVASTATIN: AN EVIDENCE-BASED MEDICINE APPROACH**

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OBJECTIVE: To determine the number needed to treat (NNT) for one additional patient to achieve the European Atherosclerosis Society (EAS) target for LDL-C of <3 mmol/L at 12 weeks for rosuvastatin compared to atorvastatin, pravastatin or simvastatin. Patients included in the clinical trials comparing rosuvastatin with atorvastatin, pravastatin and simvastatin had an initial LDL-C ≥160 (4.1 mmol/L) and <250 mg/dL (6.5 mmol/L). METHODS: The rosuvastatin trials were specifically designed to allow pooling of the data to provide summary estimates of efficacy. This design strategy minimised the potential bias caused when pooling results by variation in the event rates, differences in the outcomes considered, effects of secular trends on disease risk, and differences in clinical setting. The pooled efficacy data was used as the basis for the calculation of the NNTs. RESULTS: Rosuvastatin 10mg is more effective at lowering LDL-C to the EAS target than atorvastatin 10mg, pravastatin 20mg and simvastatin 20mg at 12 weeks and this translates into relatively small NNTs. By convention, NNTs are rounded up to the nearest whole number of patients. Rosuvastatin 10mg has an NNT of 4 compared to atorvastatin 10mg, 2 compared to pravastatin 20mg, and 4 compared to simvastatin 20mg (p < 0.001, all comparisons). CONCLUSIONS: As a general rule, an NNT of 6 or less might be considered “good” for an acute treatment, while an NNT as large as 40 might be considered “good” for a chronic treatment (depending on the duration of treatment and the severity of outcome). In this context, an NNT of 4 for rosuvastatin 10mg compared to the next best in class (atorvastatin 10mg) would be considered a very favourable result.

**PCV13**

**ENOXAPARIN USE IN PATIENTS WITH MECHANICAL HEART VALVES REQUIRING BRIDGING THERAPY FOR SUBTHERAPEUTIC CHRONIC ORAL ANTICOAGULATION**

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OBJECTIVES: Enoxaparin has been used for thromboprophylaxis (TBX) when patients with mechanical heart valves require bridging therapy for sub-therapeutic chronic oral anticoagulation (COA). Due to recent
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reports of prosthetic heart valve thromboses while on enoxaparin, the medication is no longer recommended for this indication. The objective of this research was to examine the relationship between the use of enoxaparin for TBX in patients with mechanical heart valves and negative health outcomes. METHODS: Data were retrospectively obtained from a hospital-based anticoagulation clinic database between January 1998 and July 2002. RESULTS: Twenty patients (13 mitral valve replacement [MVR], 6 aortic valve replacement [AVR], and 1 combination [MVR/AVR]) representing 36 encounters were identified. Eighteen patients had multiple co-morbid conditions that further increased their risk for thrombus formation including: atrial fibrillation, congestive heart failure, previous stroke, and cancer. All patients received enoxaparin 1 mg/kg every 12 hours. Enoxaparin was used for TBX as bridging therapy associated with sub-optimal COA. Reasons for a sub-optimal anticoagulation with warfarin included non-adherence to warfarin therapy and/or a low vitamin K diet, or a suboptimal dose of warfarin. In 35 of 36 patient encounters, no evidence of thromboembolic events occurred during bridging therapy with enoxaparin. One patient developed hemianopsia and blurred vision approximately 3–4 hours after beginning enoxaparin therapy. Prior to beginning enoxaparin therapy, the patient’s INR was 1.39; the duration of sub-therapeutic COA in this patient is unknown. It could not be determined if this event was due to an inadequate level of anticoagulation provided by enoxaparin or inadequate anticoagulation with warfarin prior to receiving enoxaparin. CONCLUSION: Enoxaparin was an effective agent for thromboprophylaxis in patients with mechanical heart valves requiring bridging therapy for sub-therapeutic chronic oral anticoagulation in this population. Further research is required to confirm these findings.

PCV14

RACIAL VARIATION IN THE UTILIZATION OF ANTIHYPERTENSIVE MEDICATIONS: AN ANALYSIS OF 1998 MEDICAL EXPENDITURE PANEL SURVEY (MEPS) DATA

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OBJECTIVES: Prior studies have shown that wide variations in the management of hypertension among different racial groups exist. The objective of our study is to explore the racial variations in the utilization of different classes of antihypertensive medications after adjusting for confounding factors. METHODS: We identified 2692 individuals diagnosed with hypertension from 1998 MEPS Household Component by their ICD-9 code. The use of antihypertensive medications were classified into six categories and one no treatment category. Logistic regressions were used to adjust for demographics, socioeconomic status, insurance, and coexisting diseases. Odds ratios, confidence intervals (CI), and significance levels were reported. RESULTS: Compared with Caucasian people, African-American and Hispanic individuals with hypertension were at significantly higher risk of receiving no antihypertensive medication therapy (OR: 1.39, CI: 1.13–1.71), and (OR: 1.41, CI: 1.10–1.80), respectively, even after controlling for potential confounders. Within different classes of antihypertensive medications, African Americans had significantly lower use of Beta-blockers or ACE inhibitors as monotherapy (OR: 0.41, CI: 0.27–0.61) and (OR: 0.50, CI: 0.34–0.75) respectively. This finding is consistent with hypertension treatment guidelines recommended by the Fifth Joint National Committee on the Detection, Evaluation, and Treatment of High Blood Pressure. Individuals with coexisting diseases, including diabetes (OR: 1.51, CI: 1.24–1.85), congestive heart failure (OR: 5.11, CI: 3.06–8.53), angina (OR: 2.65, CI: 1.57–4.50), and renal diseases (OR: 2.74, CI: 1.17–6.44) had substantially higher rates of receiving combination therapy. CONCLUSIONS: Substantial racial variations in the utilization of antihypertensive medications can not simply be explained by demographic and socioeconomic differences across different racial groups. Efforts should be made to improve the medication treatment rate of hypertension among African Americans and Hispanics.

PCV15

WITHDRAWN