

PCV8**ESTIMATING POPULATION BLOOD PRESSURE CONTROL AMONG US HYPERTENSIVE PATIENTS**Yuan Y¹, Chen R¹, L'Italien G¹, Karaniewsky R²¹Bristol-Myers Squibb, Princeton, NJ, USA; ²Bristol-Myers Squibb, Plainsboro, NJ, USA

OBJECTIVES: Treatment-to-Goal analyses are commonly used to predict population blood pressure (BP) control rates for antihypertensive agents based on mean BP lowering. However, control rates are frequently inaccurate because variability in BP reduction and baseline BPs are not considered. This study presents a new methodology that improves on population BP control estimates. **METHODS:** Untreated hypertensive patients (n = 2483) from the Third National Health and Nutrition Examination Survey formed the test-sample. Monte Carlo simulation trials (MCST) of 500 patient-level BP reductions were generated from 3 underlying distributions: normal, lognormal, and beta. BP control, defined as SBP < 140 and DBP < 90 mmHg, was estimated by 3 methods: parametric- MCST-based means and variances were used to generate BP lowering data, assuming a normal distribution, and were subtracted from test-sample baseline BPs; point-estimate- mean BP reductions from MCST were directly subtracted from baseline BPs; bootstrapping- MCST BP reductions were bootstrapped with replacement and applied to the test-sample. Parametric and point-estimate results were compared to more comprehensive bootstrapping estimates for each simulation trial. We also investigated the relative performance of each method in the subgroup patients at three hypertension stages defined in the JNC VI guideline. **RESULTS:** We assumed a mean (+SD) BP lowering of 20(12) and 14(7) mmHg systolic and diastolic. Parametric, bootstrapping, and point-estimate methods projected BP control rates of 66.9, 67.3, and 75.5%, respectively. The Point-estimate method frequently projected inaccurate control rates while the parametric results were shown consistent with the bootstrap method under a wide range of model conditions. **CONCLUSIONS:** Regardless of the underlying data distribution, parametric method provides more accurate control rates than point-estimate. Since patient-level BP reduction trial data are frequently unavailable to researchers, this parametric method can be used to generate more accurate treatment to goal analyses. This methodology can be extended to other therapeutic areas to estimate treatment effectiveness.

PCV9**META-ANALYSIS OF STATINS IN THE LOWERING OF LOW-DENSITY LIPOPROTEIN CHOLESTEROL TO EUROPEAN ATHEROSCLEROSIS SOCIETY TARGET USING ROSUVASTATIN AS A COMMON COMPARATOR**Morrell J¹, Edwards S²¹Fitznells Manor Surgery, Ewell, Surrey, United Kingdom;²AstraZeneca UK Ltd, Luton, Bedfordshire, United Kingdom

OBJECTIVE: To combine the results of the four published clinical trials comparing rosuvastatin with either atorvastatin, pravastatin or simvastatin by meta-analysis to quantify the magnitude of difference in the percentage of patients failing to achieve the European Atherosclerosis Society (EAS) target for LDL-C of <3 mmol/L at 12 weeks. Patients included in the clinical trials had an initial LDL-C ≥ 160 (4.1 mmol/L) and <250 mg/dL (6.5 mmol/L). **METHODS:** Meta-analysis of patients failing to achieve the EAS target at 12 weeks calculated by intention-to-treat (ITT) analysis. ITT was defined as, "patients being analysed in the treatment arm that they entered at randomisation, regardless of whether they dropped-out, received the incorrect treatment or withdrew before completion of the trial". **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. There is an increase in the relative risk of failing to achieve the EAS target for LDL-C with atorvastatin 10mg (RR 2.31; 95%CI: 1.76 to 3.04), pravastatin 20mg (RR 3.91; 95%CI: 3.05 to 5.03) and simvastatin 20mg (RR 2.41; 95%CI: 1.83 to 3.16), compared to rosuvastatin 10mg. A chi-squared test was carried out to investigate possible heterogeneity in each of the comparisons. Significant heterogeneity was not detected in any of the comparisons made. **CONCLUSIONS:** Compared to rosuvastatin 10mg, there is a significant increase in the risk of failing to achieve the EAS target for LDL-C with atorvastatin 10mg, pravastatin 20mg and simvastatin 20mg at 12 weeks.

PCV10**DEFINING OUTCOMES IN STUDIES OF BLEEDING MORBIDITY ASSOCIATED WITH ANTICOAGULATION THERAPY**Ofori BD¹, Davey PG¹, Goudie B², Timoney A³¹University of Dundee, Dundee, United Kingdom; ²Westgate Health Centre, Dundee, United Kingdom; ³Tayside Health Board, Dundee, United Kingdom

OBJECTIVES: The reported incidence of bleeding associated with oral anticoagulation therapy varies widely. The study objectives were to identify good quality evidence about risk of bleeding and to investigate the impact of study heterogeneity on outcomes. **METHODS:** A search was made of MEDLINE and EMBASE for randomised controlled trials and inception cohort studies between January 1990 and March 2002. Selection criteria were: anticoagulation monitored by INR, percentage time within range stated, and criteria for defining a major bleed stated. The sensitivity of diagnostic criteria for bleeding events was investigated by assembling a six-month cross sectional retrospective cohort of anticoagulated patients. Outcome events in this cohort were then assessed against the criteria for "major bleeds" proposed by each reviewed study. **RESULTS:** Twelve studies were identified that met the selection criteria. Significant variation was seen in the major bleed rates across the studies

($P < 0.0002$, 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 10 mg is more effective at lowering LDL-C to the EAS target than atorvastatin 10 mg, pravastatin 20 mg and simvastatin 20 mg at 12 weeks and this translates into relatively small NNTs. By convention, NNTs are rounded up to the nearest whole number of patients. Rosuvastatin 10 mg has an NNT of 4 compared to atorvastatin 10 mg, 2 compared to pravastatin 20 mg, and 4 compared to simvastatin 20 mg ($p < 0.001$, 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 10 mg compared to the next best in class (atorvastatin 10 mg) 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