18–49 years were 57% less likely (OR 0.43 95%CI 0.41–0.46, \(p < 0.0001\)), to receive antilipidemics than patients ≥65 years old. Patients with substantial disease burden (Charlon Index >1) were 9% more likely to receive antilipidemics (OR 1.09, 95%CI 1.01–1.18, \(p = 0.024\)) than those with no or moderate disease burden (Charlon ≤1). CONCLUSION: Although CHD remains a leading cause of U.S. mortality irrespective of sex, race/ethnicity, or age, and antilipidemics benefit patients across these demographic characteristics, we found that females, Blacks, and younger (aged 18–50 years) Medicaid patients with dyslipidemia were significantly less likely to receive antilipidemics than their male, White or older counterparts.

PCV66

COMPARING QUALITY OF CARE: IS IT MEANINGFUL?

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OBJECTIVES: The purpose of this study was to compare the survival of patients admitted to different types of hospitals for their first acute myocardial infarction (AMI), and to assess how the definition of failure and different variables affect the results.

METHODS: The analysis utilized the Victorian Admitted Episodes Data Set from 1996–2005, which contains data on all patients admitted to acute private and public hospitals in the state of Victoria, Australia. A hazard model was used to model time to failure, which was defined either as 30-day mortality, or readmission for subsequent AMI. Hospitals were grouped into one of five types and these were included as explanatory variables. Other control variables, including AMI location, co-morbidities, treatments, and demographics, were added to the model one by one in order to determine their effect on survival, and on the effect of hospital type on survival. RESULTS: The impact and significance of hospital type on survival depended strongly on the definition of failure. Large teaching hospitals had significantly higher failure rates than all other hospital types when failure was defined as readmissions, while this ordering was almost reversed when failure was defined as 30-day mortality. Controlling for planned and unplanned treatments did not significantly affect these results. Including indices of socioeconomic status amplified the effects when failure was defined as readmissions, but had no significant effect otherwise. Location of AMI was significant only when failure was defined as 30-day mortality, and improved the relative performance of large regional base and suburban hospitals. All other variables were generally similar in both models. CONCLUSION: The effect of hospital type on survival depended strongly on the definition of failure and somewhat on the inclusion of certain control variables. The results suggest that comparing the effects of hospital type using patient outcomes requires careful consideration.

PCV67

MANAGEMENT OF PATIENTS WITH ACUTE MYOCARDIAL INFARCTION WITH ST SEGMENT ELEVATION (STEMI) ACCORDING TO GUIDELINES IN SPAIN

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OBJECTIVES: To evaluate degree of implementation of the American and European guidelines related to the treatment as secondary prevention, in the management of patients with acute myocardial infarction with ST segment elevation (STEMI).

METHODS: Cross-sectional and multicentric study realized in cardiology outpatient clinics in Spain. Physicians included consecutively outpatients over 18 years with STEMI happened within 2 previous years. The guidelines of reference were the American College of Cardiology/American Heart Association (ACC/AHA 2004) and European Society of Cardiology (ESC 2003). Descriptive statistics and comparison of averages ("t" of Student and Or of Mann-Whitney) and proportions (Chi-squared) were realized with SAS package. RESULTS: A total of 1439 out of 1588 patients were valid for analysis (90.6%). A total of 80.3% were males, middle age were 62.4 years-old (STD = 11.8) and the average BMI was of 27.8 Kg/m2 (STD = 3.7). The most frequent concomitant diseases were hypertension (53.6%) and diabetes mellitus type II (28.5%). The average of time after STEMI was 9.6 months (STD = 7.2). The treatments more frequently used were statins (93.6%), aspirin (93.2%) and beta-blockers (83.5%). The treatments used in accordance with guidelines were antiagregants/anticoagulants (99.7% in both guidelines), statins (94.4% in ACC/AHA and 93.5% in ESC) and beta-blockers (83.5% in both guidelines), staying in the second term ACE inhibitors/ARBs (78.2% ACC/AHA and 59.7% ESC) and aldosterone antagonists (19.5%); this is one only recommended by the ACC/AHA. To summarize, 65.3% (ACC/AHA) and 52.4% (ESC) of the patients were being treated according guidelines. Regarding lifestyle factors, only 9.2% (ACC/AHA) and 6.4% of patients followed the overall guidelines’ recommendations. CONCLUSION: This study shows a low implementation of guidelines by Spanish physicians in managing patients with STEMI, with more adherences to ACC/AHA 2004 than ESC 2003 guidelines. Treatment recommendations are more followed than lifestyle recommendations. Based on this study, actions are needed to increase adherence of Guidelines in Spain.

PCV68

CENTRALISED PAN-EUROPEAN SURVEY ON THE UNDER-TREATMENT OF HYPERCHOLESTEROLEMIA IN PATIENTS USING LIPID LOWERING DRUGS (CEPHEUS)

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OBJECTIVES: Surveys evaluating plasma lipid goal attainment in CHD patients prior to the updated European guidelines on CVD prevention (Third Joint Task Force [TJTF]) showed that hypercholesterolemia is inadequately treated. Limited data accounts for the reasons behind this. The aim of this survey was to evaluate the current use and efficacy of lipid lowering drugs (LLD), and to identify possible patient/physician characteristics associated with failure to be at the TJTF guideline LDL-C target.

METHODS: An European multi-centre, cross sectional survey in 8 countries including patients on LLD for >3 months (stable medication >6 weeks). One visit was scheduled for data collection including fasting lipids analysed by a central laboratory. In all but 1 country physicians and patients filled in a questionnaire about aspects of hypercholesterolemia and treatment. Data was analysed centrally. Determination of individual LDL-C targets followed 2003 TJTF guidelines including SCORE tables. RESULTS: A total of 15,199 patients were recruited (14478 included in the final analyses) with the following characteristics: mean (±SD) age 63.2 (11.3) yrs (45% females), waist circumference 97.0 (13.3) cm. 62% had a history of hypertension, 18% were smokers, 32% of the subjects had metabolic syndrome (MS) according to the NCEP ATP III criteria. Reason to prescribe LLD: 67% primary prevention (PP), 33% secondary prevention (SP) or familial hypercholesterolemia. 93% of the patients used
statin mono-therapy. Overall 55% of the patients were at target (56% of PP and SP patients and 54% of MS patients). Multivariate analyses of the patient/physician questionnaire from 7 countries that contributed to the complete dataset showed that non-adherence to LDL intake was an important determinant for not reaching LDL-C targets (OR: 0.57; [95% CI, 0.48–0.91]).

CONCLUSION: More than 40% of European patients using LDL are not on target for LDL-C. Measures to increase adherence may have significant impact to reach LDL-C targets.

**CARDIOVASCULAR DISEASE—Methods and Concepts**

**PCV69**

**SIMPLE SENSITIVITY ANALYSIS TO ASSESS THE IMPACT OF ROUNDING OF BLOOD PRESSURE MEASUREMENTS ON ESTIMATES OF CONTROL RATES**

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OBJECTIVES: Clinicians have a strong tendency to round blood pressure (BP) readings, particularly to the closest multiple of ten, even when using precise digital devices. This poses a challenge for classifying patients as controlled in economic evaluations when values fall on the boundary of the definition (e.g., 140/90 mmHg), since including or excluding the boundary values will over- or under-estimate control rates. We describe a simple sensitivity analysis to gauge the impact of rounded readings.

METHODS: The method attempts to correct the excess number of values ending in zero by redistributing these in the ±5 mmHg range around the observed value. Thus, a value of 140 mmHg is replaced by a new hypothetical measurement drawn randomly between 135–144 mmHg. The correction is made for 90% of observations falling on the boundary since 10% would naturally be expected to end in zero. We illustrate the method with simulated data and validate by comparing the proportion below the threshold with the true, the rounded and the corrected BPs. The correction was applied to data from an ongoing study of a hypertension control education program.

RESULTS: A sample of 1000 random systolic BPs was generated with mean 155 and variance 30; these “true” data were then distorted by rounding 40% of values (as observed in the study). The 30.8% in the true data that were controlled (<140 mmHg) dropped to 28.6% after rounding; after the correction, the proportion was 30.9%. In time-to-control (<140/90 mmHg) analyses of the study data, 34.2% of patients had controlled BP at 6 months based on the observed data. Replicating the analyses with corrected BPs yielded an estimate of 41.9%. CONCLUSION: The impact of rounding should be taken into account in analyses of BP data to minimize bias in control rates, as well as attenuation of treatment effect estimates that might result.

**PCV70**

**MULTINOMIAL PROPENSITY SCORE ESTIMATORS AND MULTIVARIATE EXPLANATORY TECHNIQUES IN A REAL-LIFE ACUTE CORONARY HEART DISEASE STUDY—THE QALYS AND COSTS OF MEDICATION, PTCA AND CAGB TREATMENT MODALITY ARE HIGHLY DEPENDENT ON THE METHODS USED**

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OBJECTIVES: In real life patients are not randomly assigned to the study groups. Thus, the results of reality may be biased by confounders and heterogeneity. Unsuitable propensity score estimators (PSEs) and explanatory techniques, which are used to control for observed confounders, may also bias the results. The PSEs, popular explanatory analysis techniques and the outcomes of acute coronary heart disease (ACHD) are assessed here.

METHODS: A total of 171 Finnish ACHD patients underwent medication, percutaneous transluminal coronary angioplasty (PTCA) or coronary artery bypass grafting (CABG). In a prospective 3-month period, demographics, coronary angiography results, costs and 15D-based quality of life were collected. Various multinomial methods including multinomial logistic (MLRA), stereotype logistic and nested logistic regression analysis as well as naive Bayes classifier was used to elicit the best PSE using the patients in the data. Ordinary least squares (OLS) RA with and without In-transformations as well as generalized linear models (GLM) were used for the explanatory RA. Multiple measures (e.g. probability, likelihood, AIC, BIC, deviance, R2, RMSE, RESET and link-test) ranked the techniques. ACHD outcomes were reported using unadjusted, adjusted and PS adjusted estimation. RESULTS: Generally, the best PSE in this study was MLRA—one additional marker was the fulfillment of independence of irrelevant alternatives (IIA). In explanatory analysis, OLS worked well for the QALY effectiveness estimates, which ranged -0.053—0.031 for medication, −0.013—0.009 for PTCA, and 0.010-0.036 for CABG depending on the use of adjustment/PSE. The In-transformed OLS gave the best fit for cost data. The Duan-smoothed estimates for the maximum cost difference were 4.6% for medication, 0% for PTCA, and 14.1% for CABG depending on the use of adjustment/PSE. CONCLUSION: The analyses of different PSEs and explanatory models offer tools to assess the quality of the models. Observational studies should be adjusted, favorably using PSE. Thus, the sensitivity analysis of PSEs is important.

**PCV71**

**AN EVALUATION OF STATIN PERFORMANCE: A BIVARIATE AND TRIVARIATE SELECTION RULE APPROACH**

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OBJECTIVES: To evaluate the performance of statin medications from a retrospective set of prescription and lab data. METHODS: A high-risk, hyperlipidemic population from a large western US integrated health plan was screened to identify patients with a six-month period of anti-hyperlipidemic abstinence prior to an initial statin, with at least one subsequent LDL-C measurement following a minimum four-month period. Statin treatment effect was evaluated over a sub-sample of patients who did not switch or augment. Instead of discarding observations, a combination selection/treatment regression model was created. The effect of atorvastatin and typical 3rd tier statins (atorvastatin and rosuvastatin) on change in LDL-C, adherence, treatment goal attainment (<100 mg/dl), and titration was evaluated using two-step and FIML estimators. Change in LDL-C was estimated using a bivariate selection rule. For binary dependent variables, two-step FGLS and FIML (trivariate selection rule) were used. Concomitant diabetes, hypertension, age, and gender were exogenous regressors in the outcome equation. For the decision equations, distance from goal at baseline was included. Recursive and non-recursive decision equations were utilized. RESULTS: There were 2724 continuously enrolled patients meeting the initial inclusion criteria. Atorvastatin (n = 1119) was associated with an increase (significant, p < 0.05, and insignificant, depending on the model) in LDL-C relative to other statins (n = 1605). Atorvastatin was associated with a higher insignificant probability of adherence and a higher signifi-