PCV20

THE ASSOCIATION BETWEEN CHOICE OF BALANCED INTRAVENOUS CRYSTALLOID AND SUBSEQUENT MAJOR IN-HOSPITAL OUTCOMES AMONG ADULT PATIENTS UNDERGOING CARDIAC SURGERY

Raghunathan K[1], Khangulov VS[2], Peyerl FW[2], Shaw AD[3]
[1]Durham VA Medical Center, Durham, NC, USA, [2]Boston Strategic Partners, Inc., Boston, MA, USA, [3]Vanderbilt University Medical Center, Nashville, TN, USA

OBJECTIVES: Adults undergoing cardiac surgery (CS) frequently receive intravenous (IV) crystalloids perioperatively for resuscitation and maintenance of adequate circulating volume. Use of balanced crystalloids has been associated with more favorable outcomes versus non-balanced crystalloids, however studies comparing outcomes among CS patients receiving different types of balanced crystalloids are lacking. We conducted a retrospective analysis using a large de-identified US electronic health record database to investigate differences in major outcomes among patients receiving different types of balanced crystalloids (during and up to 72 hours post-CS). **METHODS:** Patients undergoing CS between January 2009 and June 2013 were included if they received ≥500mL balanced crystalloid within 1 day following surgery and survived ≥1 day. Patients with a length-of-stay >30 days, undergoing multiple CS procedures, or receiving >1L fluid on the day preceding surgery were excluded (restricting the cohort to those undergoing routine elective CS). Following univariate descriptions, propensity-score matching was carried out and outcomes were compared (adjusted for confounders). Models compared patients receiving Plasma-Lyte® or Normosol® (PL-N) versus Lactated Ringer's (LR), as these solutions differ in their electrolyte composition. The primary outcome was 90-day in-hospital mortality (during index hospitalization or readmission). Additional outcomes included daily per-patient costs, renal, cardiac and vascular events, respiratory failure, and infectious, gastrointestinal, and neurologic complications. **RESULTS:** 4,089 patients met inclusion criteria. We selected 299 patients receiving PL-N and matched them using propensity-score-based greedy matching methods with an equal number receiving LR. There were significant regional differences in the choice of crystalloid (PL-N more common in the South). Odds of 90-day mortality following the receipt of PL-N versus LR were 0.96 [0.94;0.97]. Daily per-patient costs and odds of respiratory failure were significantly lower among patients receiving PL-N. **CONCLUSIONS:** Receipt of PlasmaLyte® or Normosol® rather than LR perioperatively in CS patients may be associated with improved outcomes and lower costs.

PCV21

MODELLING THE CLINICAL AND ECONOMIC OUTCOMES OF VARIATIONS IN INTENSITY OF VALSARTAN-CENTRIC REGIMENS FOR HYPERTENSION

Alshayban DM
University of Arizona, Tucson, AZ, USA

OBJECTIVES: First, to examine how both the effectiveness of valsartan centric regimens and the patients-related factors affect the control rates of the Systolic Blood Pressure (SBP), Diastolic (DBP) and combined SBP/DBP; specifically for Belgian patients with a history of failed or intolerant anti-hypertensive treatment. Secondly, to assess the effectiveness of valsartan treatment groups and the related factors concerning a patients' total cardiovascular risk (TCVR) residuals. Lastly, to attempt to estimate the cost avoidance factor associated with taking varying levels of valsartan treatment doses. **METHODS:** This research took the form of a secondary-data analysis. The variants of valsartan doses given to patients included: valsartan monotherapy, a combination of valsartan with hydrochlorothiazide, and a combination of valsartan with amlodipine. We applied Bailey's approach, using Kaplan-Meier curves to estimate the distribution of treatment intensity at which the target rates of SBP, DBP and SBP/DBP were achieved. **RESULTS:** A total of 17,683 patients were included in this study. Overall, there was a statistically significant increase in the proportion of patients with controlled SBP, DBP and combined SBP/DBP after 90 days of starting on valsartan-centric regimens (p<0.001). Both older age and the presence of diabetes were associated with a lower control rate of SBP, DBP and combined SBP/DBP (P<0.05). Substantial reductions in total cardiovascular risk, particularly in the very high added-risk category was observed and an increase in the low added risk TCVR (p<0.001). The associated cost avoidance with varying levels of treatment intensity were dose related. **CONCLUSIONS:** Valsartan-centric regimens were effective in increasing the control rates of SBP, DBP and combined SBP/DBP in the real practice for patients whose prior treatment failed. Not only did valsartan regimens improve the BP control rate, they also reduced the TCVR residuals. Additionally, substantial cost avoidance was found to be associated with the use of higher levels of treatment intensity.

PCV22

COMPARE EARLY MORTALITY AFTER AORTIC VALVE REPLACEMENT WITH MECHANICAL PROSTHETIC VS BIOPROSTHETIC VALVES AMONG MEDICARE BENEFICIARIES

Du D[1], McKean S[2], Kelman JA[3], Laschinger J[1], Johnson C[2], Warnock R[2], Worrall CM[4], Sedrakyan A, Liu X[3], Encinosa W[6], MaCurdy TE[5], Izurieta HS[1]
[1]Food and Drug Administration, Silver Spring, MD, USA, [2]Acumen LLC, Burlingame, CA, USA, [3]CMS, Washington DC, DC, USA, [4]CMS, Baltimore, MD, USA, [5]Weill Cornell Medical College, New York City, NY, USA, [6]Agency for Healthcare Research and Quality, Rockville, MD, USA

OBJECTIVES: To compare early mortality after aortic valve replacement (AVR) between the recipients of mechanical and bioprosthetic aortic valves. **METHODS:** A retrospective analysis of patients 65 years or older in the 2006-2011 Medicare databases who underwent AVR. In the mixed effects models adjusting for physician and hospital random effects, we estimated odds ratios (OR) of early mortality, comparing mechanical versus bioprosthetic valves. Early mortality was measured as death on the surgery date, death within 1-30 and 31-365 days after the surgery date, death within 30 days after the hospital discharge date and operative mortality (death within 30 days following surgery, or at discharge, whichever is longer). **RESULTS:** Of the 66,453 Medicare beneficiaries included in the study, 19,190 (28.88%) received a mechanical valve and 47,263 (71.12%) received a bioprosthetic valve. The risk of death on the surgery date was 60% higher for mechanical valves than for bioprosthetic valves (OR, 1.61; 95% CI, 1.27-2.04; P<0.0001). The risk difference decreased to 16% during 30 days after the surgery date (OR, 1.18; 95% CI, 1.09-1.28; P<0.0001). There were no differences within 31 to 365 days after the surgery date and within the 30 days post-discharge. Risk of operative mortality was 19% higher for mechanical valves than for bioprosthetic valves (OR, 1.21; 95% CI, 1.13-1.30; P<0.0001). The number needed to treat with mechanical valves to observe one additional death on the surgery date was 290. Consistent findings were observed in subgroup analyses of patients who underwent concurrent AVR and Coronary Artery Bypass Graft (CABG), but not in isolated AVR subgroup. **CONCLUSIONS:** In this cohort analysis of Medicare beneficiaries, mechanical aortic valves were associated with a higher risk of death on the surgery date and within the 30 days following surgery when compared with bioprosthetic aortic valves among patients who underwent concurrent AVR and CABG, but not isolated AVR.

PCV23

COMPARATIVE EFFECTIVENESS OF ANGIOTENSIN CONVERTING ENZYME INHIBITORS AND ANGIOTENSIN II RECEPTOR BLOCKERS IN HEART FAILURE

Sharma M, Johnson ML, Chen H, Aparasu R
University of Houston, Houston, TX, USA

OBJECTIVES: The objectives were to determine the comparative effectiveness of Angiontensin II receptor blockers (ARB) and Angiotensin converting enzyme Inhibitors (ACEI) in patients with heart failure (HF), and to determine comparative effectiveness of individual drugs within classes - ACEIs and ARBs. **METHODS:** A retrospective national cohort of Veterans Affairs patients with HF from 1997 to 2002 was employed. Exposure to ARB therapy or ACEI therapy was seen in 2002. Mortality as outcome was assessed within one year of follow-up. Multivariate Cox proportional hazards regression and propensity scoring techniques were employed for data analysis, adjusting for 45 patient risk factors including socio-demographics, co-morbidities, co-medications and severity of illness. **RESULTS:** Out of a total cohort of 299,462 patients, 200,552 patients were on either ACEIs or ARBs. 187,478 patients were taking ACEIs and 25,987 were taking ARBs. There was no significant difference in reduction of risk of mortality with use of ARBs versus ACEIs (HR 0.955, 95% CI: 0.907-1.006). Results from stratification using propensity score analysis also suggest the same. Patients were stratified into 5 groups based on propensity to receive ARB. Proportion of patients that died was not significantly different for ACEI and ARB in four out of the five groups. Among ACEIs, Enalapril (HR 0.715, 95% CI: 0.584-0.876), Fosinopril (HR 0.778, 95% CI: 0.729-0.830) and Lisinopril (HR 0.784, 95% CI: 0.740-0.831) were significantly better than Captopril in reducing risk of mortality. Among ARBs, Candesartan (HR 0.847, 95% CI: 0.751-0.994) and Irbesartan (HR 0.892, 95% CI: 0.795-1.00) were significantly better than Losartan in reducing risk of mortality. **CONCLUSIONS:** Results from the study suggest that ARBs are equally effective as ACEIs in reducing risk of mortality in heart failure patients and there are significant differences in effectiveness of individual drugs within ACEIs and ARBs in reducing risk of mortality in heart failure.

PCV24

MULTIFACETED INTERVENTIONS IMPROVE MEDICATION ADHERENCE IN MEDICAID PATIENTS PRESCRIBED HYPOGLYCEMICS, STATINS, AND/OR ANTIHYPERTENSIVES

Gao W[1], Keleti D[1], Donia T[1], Downey TW[1], Megargell L[2], Kreitman J[3], Michael KE[1], Gelzer AD[1]
[1]The AmeriHealth Caritas Family of Companies, Philadelphia, PA, USA, [2]PerformRx, Philadelphia, PA, USA, [3]AmeriHealth Caritas Pennsylvania, Harrisburg, PA, USA

OBJECTIVES: To measure the effectiveness of adherence interventions for oral hypoglycemics, antihypertensives, and statins on medication adherence and acute hospitalization (emergency room [ER] and inpatient) in three Medicaid managed care organizations (MCOs) in Southeastern Pennsylvania (SEPA) and Lehigh/Capital-New West Pennsylvania (LCNWPA). **METHODS:** One-year follow-up analysis of prescription and hospitalization member data with prescription fills for hypoglycemics, statins, and/or antihypertensives from January 1 to December 31, 2012. Thirty interventions— categorized as general interventions (GI) for all subjects and personalized interventions (PI) for higher-risk care-managed subjects—were implemented to improve 2013 adherence. Medication adherence (proportion of days covered [PDC]; baseline inclusion criterion: 20%–67%) and acute hospitalization rates (utilization per thousand members per year) were calculated at baseline and at one-year post-intervention. **RESULTS:** Of 6,382 participants (1,607 LCNWPA; 4,775 SEPA), 1,044 were PI subjects (579 LCNWPA; 465 SEPA). SEPA and LCWPA member profiles were demographically similar to one another, except regarding race and ethnicity. The PDC rate improvements for all three medication classes were 13.14% for LCNWPA and 14.15% for SEPA (P<0.01 for both), accompanied by significant increases in inpatient admissions (+11.0% and +1.9%, respectively; P<0.01 for both); the SEPA cohort also experienced an increase in inpatient admissions—small in magnitude, but statistically significant (+0.3%; P<0.01). Improvements in mean PDC were significantly greater in PI than GI subjects (LCNWPA: 16.12% vs. 11.46%, P<0.01; SEPA: 20.95% vs. 13.42%, P<0.01), but increases in acute hospitalization were also significantly greater (P<0.01 for all, except ER-[LCNWPA]) due to selection bias. Subjects demonstrating improvements in 2013 PDC rates displayed comparable changes in acute hospitalization rates as their non-improving counterparts. **CONCLUSIONS:** Multifaceted MCO-implemented adherence interventions significantly improved medication adherence in Medicaid participants, especially in higher-risk subjects. However, these PDC improvements were not necessarily translated into measurable reductions in acute hospitalization over the one-year post-intervention timeframe.

PCV25

EVALUATION OF BLEEDING OUTCOMES LINKED TO NEW ORAL ANTICOAGULANTS: REVIEW OF THE FDA ADVERSE EVENT REPORTING SYSTEM (FAERS)

Jacobs DM, Hempel C, Feuerstein S
University at Buffalo, Buffalo, NY, USA

OBJECTIVES: Clinical trials comparing rivaroxaban or dabigatran to warfarin show similar results for major and non-major clinically relevant bleeding. Post-marketing data regarding bleeding rates for these new oral anticoagulants (NOACs) is lacking. Our goal was to evaluate bleeding related outcomes with NOACs using a disproportionality analysis of spontaneous adverse event reports. **METHODS:** We evaluated the FAERS database from 10/2011 – 12/2012 to compare frequency of events in reports of rivaroxaban, dabigatran, and warfarin related to fatal and non-fatal bleeding. Reports were included if the anticoagulant was the primary suspected agent for the event. Reporting odds ratio (ROR) and proportional reporting ratio (PRR) were calculated to estimate risk for each anticoagulant. **RESULTS:** Of 22,244 eligible adverse drug reports for the anticoagulants, 7661 (34%) bleeding reports were submitted, with 1868 (24%) deaths, 5028 (66%) hospitalizations and 1040 (14%) life-threatening events. Dabigatran was the most commonly reported anticoagulant exposure among bleeding cases (n=5203, 68%). Of the bleeding cases associated with dabigatran, death was reported in 29%, hospitalization in 67%, and life-threatening events in 15% of cases. The odds of exposure for fatal bleeding was significantly higher with dabigatran (ROR 2.28, 95% confidence interval [CI] 2.02-2.56) and significantly lower with rivaroxaban (ROR 0.75, CI = 0.69-0.8) and warfarin (ROR 0.53, CI = 0.44-0.63). PRR indicated significantly increased risk of non-fatal bleeding with dabigatran (PRR = 2.12, CI = 1.99-2.24) and warfarin (PRR = 1.27, CI = 1.17-1.38) with a significant decrease associated with rivaroxaban (PRR 0.8, CI = 0.75-0.86). **CONCLUSIONS:** Among the NOACs, patients having fatal and non-fatal bleeding were found to have higher odds of dabigatran exposure and significantly lower odds of rivaroxaban exposure. Though FAERS is subject to significant bias, the results suggest dabigatran-related bleeding is higher in clinical practice and rivaroxaban may be a safer alternative.

PCV26

ANTIHYPERTENSIVE DRUG UTILIZATION IN ELDERLY OUTPATIENTS IN SERBIA

Tomas A, Horvat O, Paut Kusturica M, Tomic Z, Ban M, Sabo A
Faculty of Medicine, Novi Sad, Serbia and Montenegro

OBJECTIVES: Arterial hypertension represents a major cause of morbidity and mortality among elderly population in Novi Sad, Serbia. The aim of this study was to analyze patterns and address financial aspects of antihypertensive drug utilization among elderly outpatients (>60). **METHODS:** Data on antihypertensive issued on prescription were collected from all state-owned pharmacies in Novi Sad (population 350,000) from September 2011 to February 2012. Consumption was calculated using the ATC/DDD methodology, and results were expressed in DDD/1000 inhabitants/day. DU90% (drug utilization 90%) segment and price per DDD were determined. **RESULTS:** The total use of antihypertensives among population >60 years in Novi Sad, Serbia was 203.1 DDD/1000inh/day. ACE inhibitors were the most frequently used drugs and accounted for 58.44% of total consumption, followed by calcium channel blockers (23.51%) and beta-blockers (11.10%). Consumption of diuretics (4.29%) and angiotensin receptor antagonists (<3%) was low. High use of ACE inhibitors was also reflected in DU90% profile. Even though most commonly prescribed drug was amlodipine (18.49%), out of 16 drugs within DU90% segment, 10 were ACE inhibitors or ACE inhibitors/diuretics fixed combinations. Average price per DDD within DU90% was 0.09 euro per DDD whereas it was 0.12 euro per DDD for drugs beyond the DU90% segment. **CONCLUSIONS:** High consumption of ACE inhibitors and disregard to other antihypertensive agents points to therapeutic irrationalities which can have considerable clinical and economic consequences. Targeted education may both improve efficacy of treatment of hypertension in elderly and provide significant savings. Acknowledgement: This work was supported by the Ministry of Science and Technological Development, Republic of Serbia, project No. 41012.

PCV27

USE OF SELECTIVE-SEROTONIN REUPTAKE INHIBITORS AND PLATELET AGGREGATION INHIBITORS AMONG INDIVIDUALS WITH CO-OCCURRING HEART DISEASE AND DEPRESSION OR ANXIETY

Thornton JD, Agarwal P, Sambamoorthi U
West Virginia University, Morgantown, WV, USA

OBJECTIVES: Anxiety and depression are prevalent in individuals with coronary heart disease. Selective-serotonin reuptake inhibitors (SSRI) are first-line therapy for many anxiety and depression disorders. Platelet aggregation inhibitors (PAI) are the cornerstone of therapy for various types of heart disease. These medications are relatively contraindicated due to an increased risk for many types of bleeding. The purpose of the study was to examine the prevalence and predictors of use of both SSRI and PAI among individuals with co-occurring heart disease and anxiety or depression. **METHODS:** Respondents who were age 22 years and older, alive throughout the study period, diagnosed with heart disease and co-occurring anxiety or depression (n= 1,253) in 2009-11 of the Medical Expenditures Panel Survey were included. Use of treatment was grouped as: 1) SSRI and PAI, 2) SSRI or PAI, and 3) Neither SSRI or PAI. **RESULTS:** Overall, 11.2% used both SSRI and PAI, 46.3% used SSRI or PAI, and 42.5% used neither SSRI nor PAI. Significant subgroup differences were observed in the use of treatment. Females were less likely to be prescribed the inappropriate combination [AOR 0.57 (95%CI= 0.36-0.92)] while respondents having education less than high school [AOR 2.27 (95%CI= 1.30-3.99)] or a diagnosis of diabetes [AOR 2.13 (95%CI= 1.28-3.53)] were more likely to be prescribed the inappropriate combination. **CONCLUSIONS:** In this sample potentially inappropriate medication use was prevalent. Patients with less education or lower socioeconomic status are more likely to have health disparities and are at higher risk for both physical and mental health conditions. In this study, the patients with lower levels of education were more likely to be receiving an inappropriate combination of medications. The strong association with diabetes diagnosis and treatment choice is important because of the increased risk for bleeding in patients who received treatment for diabetes.

PCV28

VOLUME AND STRUCTURE OF ANTIHYPERTENSIVE DRUGS CONSUMPTION IN UKRAINE

Iakovlieva L, Mishchenko O, Bezditko N, Gerasymova O, Kyrychenko O, Tkachova O, Matyashova N
National University of Pharmacy, Kharkiv, Ukraine

OBJECTIVES: Arterial hypertension (AH) largely determines the high mortality rate and disability of working age persons from coronary heart diseases. In Ukraine in 2012 according to official statistics 12.1 million patients with AH were registered. It is 32.2% of the adult population. The purpose of the study - assessment structure and volume of antihypertensive drugs (AHDs) consumption during 2008-2013 in Ukraine. **METHODS:** Analysis of AHDs consumption was performed using ATC/DDD-methodology and data of drugs supply in informational-search system "Pharmaceuticals" of company MORION during 2008-2013. Consumption of AHDs was determined in the indicator: DDDs / 1000 inhabitans / day (DIDs). AHDs of the first-line: thiazide and thiazide-type diuretics, β-blockers, calcium channel blockers, ACE inhibitors, angiotensin II receptor blockers and the second line: α-blockers, central antiadrenergic drugs, peripheral vasodilators were analyzed. **RESULTS:** Volume of AHDs consumption increased from 60,64 DIDs in 2008 to 96,43 DIDs in 2013. About 6.08% - 9.6% of inhabitans take one DDD per day. Recalculation volumes of AHDs consumption for a total aggregate of patients with AH showed that only 23% - 36% of patients receive treatment. This testifies to the low adherence of patients to treatment. A comparison the volumes of AHDs consumption has shown that the consumption of AHDs in Ukraine is less, but stroke mortality is higher than in the developed countries. Consumption of AHDs of the first line accounts for a large share which increased from 83.7% in 2008 to 89.3% in 2013. Consumption of AHDs of the second line decreased. **CONCLUSIONS:** Structure of AHDs consumption in Ukraine indicates compliance of antihypertensive therapy to current clinical guidelines. The consumption of AHDs in Ukraine is less than in other countries, so the most urgent problem for Ukraine is to find mechanisms for increasing the adherence of patients to hypertension treatment.

PCV29

OUTCOMES, HEALTH COSTS AND USE OF STATINS IN 6,226 PATIENTS ADMITTED IN 2011 FOR AN ACUTE CORONARY SYNDROME (ACS) OCCURRING IN A LARGE COMMUNITY SETTING OF 2,989,512 SUBJECTS

Maggioni AP[1], Cinconze E[2], Rossi E[2], De Rosa M[2], Esposito I[3], Martini N[3]
[1]*ANMCO Research Center, Florence, Italy,* [2]*CINECA Interuniversity Consortium, Casalecchio di Reno, Italy,* [3]*Accademia Nazionale di Medicina, Roma, Italy*

OBJECTIVES: To assess in a community setting how patients discharged alive after an ACS are treated with statins. Specifically, the rate of prescription, the dosages and 1-year adherence have been evaluated. **METHODS:** From the ARNO Observatory, we carried out a record linkage analysis of discharge records for ACS and prescription databases, which included 2,989,512 subjects of 7 Local Health Authorities from Northern to Southern Italy. The accrual period lasted from January 1 to December 31, 2011. **RESULTS:** Of the 2,989,512 subjects, 6,226 (2.1‰) were hospitalized for ACS over the 12 months of observation, 58% of patients were aged more than 70 years, females accounted for 36% of the cases, diabetes was reported in 31%. In-hospital all-cause death was 4.6%. Of the patients discharged alive, 69.9% received a statin treatment at the time of discharge. High dosage of statins were used in 70.4% of cases. After 1 year follow-up, adherence to treatment was observed in 71.7% of patients. Over the 1-year follow-up, 63.3% of the patients needed to be readmitted again (50.4% for cardiovascular causes). The average yearly cost per patient for the total ACS population was 16,897€/year (drugs, 1,692€; hospitalizations, 14,198€; diagnostic and outpatient visits, 1,007€). **CONCLUSIONS:** In a community setting, the rate of prescription of statins after an ACS seems to be at least suboptimal. However, the dosages of prescribed statins suggest that the use of intensive statin treatment increased over the last few years. Prescription continuity over time was not adequately followed. Patients with ACS have high direct healthcare costs, rehospitalization being the main cost driver. There is still a gap between evidence based recommendations and what actually happens in the routine clinical practice, surely determining a high social and economical burden for the national health structures.

PCV30

PHYSICIAN'S ADHERENCE TO TREATMENT GUIDELINES IN DEEP VEIN THROMBOSIS AT AN INDIAN TERTIARY HEALTHCARE FACILITY

Tiwari P[1], Sunarikani R[1], Malhotra S[2]
[1]*NIPER MOHALI INDIA, MOHALI, India,* [2]*Private Hospital, MOHALI, India*

OBJECTIVES: Despite the availability of effective prophylactic and therapeutic options, VTE continues to be under diagnosed and undertreated. The incidence of DVT in India, however, is comparable to that in the Western countries. This study aimed to assess the adherence of treatment guidelines in the prophylaxis of DVT and evaluated the risk factors associated with DVT. **METHODS:** The prospective study was carried out at an Indian tertiary healthcare setting where the patients were enrolled in the study as per the defined inclusion and exclusion criteria. The results are based on findings from a total of 230 patients. The patients were classified into four different categories based on the risk of DVT- low, moderate, high and highest. **RESULTS:** The results are based on data obtained from 158 female and 72 male patients. The average age of the patients was found to be 62.1±0.9 yrs. The average age of female patients was found to be statistically significantly higher than the average age of male patients. Of 230 patients, 207 patients received Enoxaparin/ Rivaroxaban/ Diateparin for prophylaxis and 5 patients through DVT pump and limb physiotherapy. It was found that 18 patients did not receive any type of DVT prophylaxis; and, out of 18 patients, 10 were managed for DVT prophylaxis with active toe movements. The adherence to the pharmacological prophylaxis was found to be 92.2%. **CONCLUSIONS:** The results of this study have shown that the adherence to ACCP guidelines in DVT prophylaxis in this study population was high (92.2%). Further, an association between surgery (major surgery, orthopaedical surgery), age and DVT risk appears to be existent.