SENSORY SYSTEMS DISORDERS – Health Care Use & Policy Studies

PSS18

THE IMPACT OF THE IPLEDGE PROGRAM ON ISOTRETINOIN FETAL EXPOSURE

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OBJECTIVES: The objective of this retrospective cohort study is to analyze the effect of the iPLEDGE program on rates of fetal exposure to isotretinoin in females of childbearing potential (FCBP). **METHODS:** This study used databases from Kaiser Permanente Southern California, which includes prescription records, laboratory results, and outpatient/inpatient visit procedures and diagnoses. All FCBP who filled isotretinoin during the study period of March 1, 2004 to February 29, 2008 were identified. Chart review was performed to validate pregnancy in patients with positive pregnancy indicators. The analysis was performed at the treatment course-level. Treatment courses were excluded if they straddled both before and after iPLEDGE implementation on March 1, 2006. Poisson regression was used to analyze the impact of iPLEDGE on the rate of fetal exposures, controlling for age, prior utilization of acne prescription medications, and other risk factors. **RESULTS:** There were a total of 8 fetal exposures during 2585 treatment courses before iPLEDGE and 6 fetal exposures during 1595 treatment courses after iPLEDGE implementation. Unadjusted fetal exposure rates increased slightly from 3.09 per 1000 treatment courses to 3.76 per 1000 treatment courses with iPLEDGE. When controlling for other factors, the rate ratio for fetal exposure after compared to before iPLEDGE implementation was 0.45 [95%CI: 0.31, 0.67] in FCBP less than 21 years of age. In FCBP greater than or equal to 21 years of age, the rate ratio was 1.46 [95%CI: 1.10, 1.94]. **CONCLUSIONS:** The risk of fetal exposure among treatment courses filled by younger FCBP significantly decreased by 55% after the implementation of iPLEDGE. In contrast, the risk of fetal exposure significantly increased by 46% after iPLEDGE began among treatment courses filled by older FCBP. Our results suggest that the iPLEDGE program had a differential effect on the rate of fetal exposures to isotretinoin depending on patient age group.

SENSORY SYSTEMS DISORDERS – Conceptual Papers & Research on Methods

PSS19

DEVELOPMENT OF A DECISION-ANALYTIC MODEL FOR GLAUCOMA PROGRESSION USING PATIENT LEVEL DATA FROM THREE LARGE RANDOMIZED CONTROLLED TRIALS

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OBJECTIVES: Evaluation of cost-effectiveness for chronic disease treatment requires development and validation of a model of disease progression using "real world" data. We constructed a Markov model using patient-level data from three large studies of glaucoma treatment and conducted internal validation. **METHODS:** Glaucoma severity and disease progression were defined clinically in terms of visual field loss expressed as mean deviation (MD) measured in decibels (dB). Patient level data for the model came from the Collaborative Initial Glaucoma Treatment Study (CIGTS n = 574), the Ocular Hypertension Treatment Study (OHTS n = 1,546), and the Advanced Glaucoma Intervention Study (AGIS n = 580). Our initial model was limited to the pattern of progression over seven years. Transition probabilities for the Markov model were calculated for each combination of year and MD. The model was estimated with TreeAge software using a microsimulation approach. Internal validation was conducted by comparing the predicted value of hypothetical participants to that of the actual study participants. For this purpose, a clinically significant difference was considered to be 3 decibels (dB) of MD. **RESULTS:** Three variables—age, race, and starting MD—were most strongly associated with change in MD. Predicted values from the model were regressed on actual study results. The R^2 for the right eye was 0.72, and for the left 0.70. Of those participants outside of a 3 dB band around "perfect" prediction, over 85% had less severe disease at year 7 than predicted by the model. **CONCLUSIONS:** Our initial results indicate that the glaucoma progression model properly predicts the result of disease progression in over 80% of "participants". This suggests that our modeling approach provides a reasonable reflection of real world progression and provides a useful tool for researchers and policy makers. Once completed, this model will provide a tool for evaluation of pressure lowering medications.

POSTER SESSION III

CARDIOVASCULAR DISORDERS – Clinical Outcomes Studies

PCV1

EFFECT OF BIVALIRUDIN ON CLINICAL OUTCOMES OF STEMI PATIENTS IN AN OBSERVATIONAL DATASET

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OBJECTIVES: Hospitals are increasingly focused on reducing patient harm associated with anticoagulant therapy. However, because treatment decisions may be based on prognosis, estimates of treatment effects obtained from observational data may suffer from "confounding by indication." To address this concern, we used a grouped-treatment approach to determine the impact of choice of anticoagulant on the risk of severe bleeding and in-hospital death in patients undergoing percutaneous coronary intervention (PCI). **METHODS:** We analyzed the Premier Perspective database on patients aged ≥18 years admitted to Premier hospitals with a diagnosis of ST-elevated myocardial infarction (STEMI) and ≥1 procedure code for PCI between Q12004 and Q12008 (N = 71,296). We constructed individual-level models of severe bleeding and in-hospital death (all-cause) similar to those in a conventional multivariate analysis, except that each individual's actual treatment variables were replaced with grouped-treatment variables (the proportion of patients receiving each treatment at the hospital/year in which treatment occurred). We used logistic regression to assess the impact of the likelihood of treatment with bivalirudin or heparin ± a glycoprotein IIb/IIIa inhibitor on severe bleeding and in-hospital death, controlling for other treatments (including stent use, other drug use, CABG); patient demographics, concomitant diagnoses, insurance status, physician specialty; and hospital region, size, teaching status. We calculated confidence intervals allowing for the clustering of errors at the hospital/year level. **RESULTS:** Bivalirudin treatment was associated with a significantly reduced risk of severe bleeding (OR = 0.45, 95% CI = 0.21–0.97) and a reduced risk of in-hospital mortality (OR = 0.83, 95% CI 0.54–1.28) compared to heparin+GPI. **CONCLUSIONS:** Increasing the proportion of a hospital's patients treated with bivalirudin was associated with a significant reduction in severe bleeding. These results demonstrate the benefits of bivalirudin for clinical outcomes in a real-world setting.

PCV2

POSTMARKETING SAFETY EVALUATION OF ALISKIREN HEMIFUMARATE, A NEW MOLECULAR ENTITY

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OBJECTIVES: To evaluate the safety profile of aliskiren by calculating the adjusted reporting ratios of specific adverse events. **METHODS:** The FDA's Adverse Event Reporting System (AERS) data are utilized to conduct this retrospective pharmacovigilance study. Adverse event (AE) reports submitted to the AERS during the period of January 2007 through December 2008 are included in the analysis. Systematic Multi-item Gamma Poisson Shrinker (MGPS) data mining algorithm is applied to calculate the adjusted reporting ratios (ARR) of AE, which estimated by the Empiric Bayes Geometric Mean (EBGM) values and their 95% confidence intervals (95%CI). EBGM values of >2.0 are considered as safety signals significant for regulatory decisions. Reports for aliskiren and other drugs affecting the Renin-Angiotensin-Aldosterone System (RAAS) are identified using the verbatim names for each individual class members. Reports for specific AE are identified by the utilized Preferred Terms of the Medical Dictionary for Regulatory Activities coding scheme (MedDRA PT) in the AERS. **RESULTS:** During the study period, a total number of 2154 reports for aliskiren are received by the AERS. Seventy four percent (1592) of these reports had valid MedDRA terms, and included in the analysis. Compared to other RAAS modulators, aliskiren was associated with the highest ARR for angioedema (EBGM 3.9, 95%CI 3.2–4.7), renal dysfunction (EBGM 3.4, 95%CI 2.6–4.5), dry cough (EBGM 11.0, 95%CI 7.8–14.2), and diarrhoea (EBGM 4.3, 95%CI 3.2–5.8). Aliskiren ranked the second after aldosterone antagonists in hyperkalaemia (EBGM 7.4, 95%CI 3.4–13.0). **CONCLUSIONS:** Treatment with aliskiren may be associated with angioedema and renal dysfunction. Patients with signs and symptoms of angioedema should stop aliskiren and seek urgent medical help. Aliskiren should not be used by patients with risks of renal dysfunction. While additional longitudinal studies and clinical awareness is warranted, regulatory changes in product label and safety communications, e.g. dear-health care-professional letters are recommended.

PCV3

ESTIMATION OF ADVERSE EVENTS RELATED WITH MEDICARE PATIENTS WHO UNDERWENT HIP FRACTURE SURGERY AND SUFFERED VENOUS THROMBOEMBOLISM VERSUS NO VENOUS THROMBOEMBOLISM

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OBJECTIVES: To estimate mortality, re-hospitalization and bleeding 30 days after a venous thromboembolism (VTE) event in patients following hip fracture surgery and to compare the outcomes with patients without VTE. **METHODS:** Based on 2005–2007 national Medicare claims, all patients who underwent hip fracture surgery were identified. Thirty days follow-up event rates for patients who had a VTE event during their initial hospitalization were calculated. Events were compared between patients