higher persistence, non-prescription medical costs were reduced for patients who were more persistent with anti-TNFs. Future analyses need to examine the influence of higher persistence on clinical outcomes.

AO3
PERSISTENT USE OF ANTIHYPERTENSIVE DRUGS LEADS TO A 1.5–2 TIMES INCREASED CHANCE OF BLOOD PRESSURE GOAL ATTAINMENT IN STAGE 2 ANTIHYPERTENSIVE PATIENTS

Breekveldt-Postma NS1, Sijpkens SJ1, Penning-van Beest FJA1, Ekena JA1, Vincze G2, Falvey H2, Herings RMC1,2
1PhARMO Institute, The Netherlands; 2Novartis Pharma AG, Switzerland; 1Department of Pharmacotherapy and Pharmacoepidemiology, University of Utrecht, The Netherlands

OBJECTIVES: This study investigated the relationship between persistence with antihypertensive drugs (AHT) and blood pressure (BP) goal attainment in clinical practice. METHODS: From the PHARMO record linkage system comprising, among others, linked drug-dispensing and hospital records of >2 million inhabitants in The Netherlands, new users of AHT were identified in the period 1999–2004. Patients with stage 1 hypertension (systolic BP of 140–159 mmHg and/or diastolic BP of 90–99 mmHg) or stage 2 hypertension (systolic BP ≥160 and/or diastolic BP ≥100 mmHg) in the period of 6 months before onset of AHT treatment were included in the study. Only patients with a BP measurement in the period of 6–12 months after treatment onset were included in the final study cohort. Persistence with AHT was determined by summing the number of days of continuous treatment (gaps between dispensings <30 days) from treatment onset. The outcome of interest was the first BP measurement in the period of 6–12 months after start. Patients with a BP below 140/90 mmHg were defined “at goal”. RESULTS: The study included 1271 patients of whom 1103 (87%) had stage 2 hypertension. About 36% of patients with stage 1 and 13% of patients with stage 2 hypertension were at goal at the time of the first BP measurement in the period of 6–12 months after treatment onset. Fifty-four percent of patients with stage 1 hypertension and 73% of patients with stage 2 hypertension were persistent with AHT at goal attainment. Persistent use of AHT was associated with a 1.7 times increased chance of BP goal attainment in stage 2 hypertensive patients (RRadj = 1.67; 95%CI: 1.13–2.46), but not in stage 1 hypertensive patients (RRadj = 1.04; 95%CI: 0.69–1.58). CONCLUSION: Persistent use of AHT plays an important role in BP goal attainment in clinical practice in stage 2 hypertensive patients.

AO4
ADHERENCE TO GASTROPROTECTION AND THE RISK OF NSAID-RELATED UPPER GASTROINTESTINAL COMPLICATIONS

Van Soest E, Sturkenboom MC, Dieleman JP, Verhamme K, Siersema PD, Kuipers E
Erasmus University Medical Center, Rotterdam, The Netherlands

OBJECTIVES: To investigate the association between the level of adherence to GPAs and the risk of serious NSAID-related UGI complications in patients using non-selective NSAIDs (nsNSAIDs) and selective COX-2 inhibitors (COX-2Is). METHODS: A population based nested case-control study was conducted within a cohort of new nsNSAID users with at least one risk factor for a NSAID-related UGI complication identified in the Dutch Integrated Primary Care Information database between 1996–2005. Adherence to GPAs was calculated as the proportion of nsNSAID treatment days covered (PDC) by a GPA prescription. Multivariate conditional logistic regression analysis was used to calculate adjusted odds ratios (OR) with 95% confidence intervals (95%CI). RESULTS: Considering the most recent episode of continuous nsNSAID use prior to the index date, 34.9% of the nsNSAID users received GPAs. Of these, 71.0% had a PDC ratio >80% (full adherence), 22.0% PDC ratios between 20–80% (partial adherence) and 7.0% being non-adherent (PDC < 20%). The risk of a serious NSAID-related UGI complication increased from 2.5 (95%CI: 1.0–6.7) in partially adherent persons to 4.0 (95%CI: 1.2–13.0) in those with a PDC < 20%. Considering the PDC level as a continuous measure, the risk of a serious NSAID-related UGI complication increased with 16% (95%CI: 2–32%) with every 10% decrease in adherence. Excluding H2RA users that were not adequately dosed for the prevention of NSAID-related UGI complications; the risk was increased 2.7-fold in patients that were partially adherent and 4.5-fold in patients that were non-adherent. CONCLUSION: There is a strong relationship between the level of adherence to gastroprotective medication and the risk of serious UGI complications in high-risk nsNSAID users. This underlines the need for adequate patient instruction regarding adherence to GPAs and/or the further development of fixed combination strategies.

PODUM SESSION II: METHODS & CONCEPTS

MCI
METHODS OF MODEL CALIBRATION: A COMPARATIVE APPROACH

Taylor DC1, Kruzikas D2, Pandya A1, Iksandar R1, Gilmore K1, Weinstein MC1
1I3 Innovus, Medford, MA, USA; 2GlaxoSmithKline, Philadelphia, PA, USA; 1Harvard University, Boston, MA, USA

OBJECTIVES: To compare results of alternative calibration methods using a global model of human papillomavirus and cervical cancer, adapted to the US setting. METHODS: We developed a mathematical model incorporating a Markov process simulating six-month transitions between health states of HPV-related cervical disease. We calibrated the model to primary endpoints, such as age-specific cervical cancer incidence and mortality, and further used mathematical algorithms to ensure model fits to age-specific prevalence of cervical intraepithelial lesions (CIN, grades 1–3). Calibration parameters consisted of age- and HPV type-specific transition probabilities, and data on US calibration targets and ranges for transition probabilities were obtained through an extensive review of the published literature. Three methods of calibration were sequentially used to calibrate the model: manual, random computer search, and Nelder-Mead computer optimization algorithm. Maximum likelihood estimation and weighted mean percentage deviation were used to evaluate the goodness-of-fit of each calibration, alternately. All calibration strategies were compared using percentage difference from the optimal goodness-of-fit score. RESULTS: The uncalibrated model deviated from the optimal fit by 62%, the manual calibration by 20%, the random search by 13%, and the Nelder-Mead optimization by 10% when using maximum likelihood as the goodness-of-fit criteria. When using weighted mean percentage deviation as the goodness-of-fit criteria, the corresponding percentages were 39% (uncalibrated), 19% (manual), 15% (random), and 11% (Nelder-Mead). Using weighted mean percentage deviation, when compared to maximum likelihood, as the goodness-of-fit criteria resulted in a closer fit to primary model endpoints, including cervical cancer incidence and mortality. CONCLUSION: Computerized methods of model calibration such as the Nelder-Mead optimization algorithm can substantially improve the predictive validity of a pharmacoeconomic model. Careful selection of the goodness-of-fit criteria is necessary to ensure that the model is calibrated according to research needs.