

burden was 48.2%, 45.3% and 39.2%. **CONCLUSIONS:** The study suggests the economic burden of osteoporosis fractures is substantial in terms of LOS and inpatient costs and elderly fracture patients consume significantly more resources. Patient co-pay rates decreased due to an increase in the reimbursement rates from health care. The rising trend in osteoporosis fractures may pose a huge burden to China.

PMS20

ADVERSE EVENTS COSTS ASSOCIATED WITH PAIN MANAGEMENT IN ADULT PATIENTS WITH OSTEOARTHRITIS AND RHEUMATOID ARTHRITIS IN FIVE LATIN AMERICAN COUNTRIES

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OBJECTIVES: Rheumatoid arthritis (RA), an autoimmune condition, and osteoarthritis (OA), a degenerative joint disorder, are both associated with inflammatory reactions. Pain relievers could ameliorate this economic burden; however depending on the first-line treatment chosen they could raise the likelihood of gastrointestinal (GI) complications or cardiovascular (CV) events. The aim of this study is to calculate the direct and indirect costs of GI and CV events associated with common pain relievers for RA and OA patients in Brazil, Mexico, Colombia, Argentina and Costa Rica from the public payer's perspective. **METHODS:** Resource use and medical cost data was collected in 2011 from local official databases and public hospital records from each noted LA market (all costs are expressed in 2012 US\$). Events considered in this assessment were: dyspepsia, symptomatic ulcer, major bleedings (severe GI complication), myocardial infarction, ischemic stroke and heart failure. Direct medical costs considered were: outpatient visits, inpatient costs, lab and diagnostic tests, acquisition drug costs, concomitant medication, and emergency room services. To estimate indirect costs, human capital approach was considered involving productivity losses based in average wages for each LA market. **RESULTS:** Among LA countries, Brazil showed the highest overall adverse event cost per patient with dyspepsia (US\$97.10) and Costa Rica the lowest (US\$57.00). In addition, a symptomatic ulcer cost ranged between US\$933.00 - US\$705.60; major bleeding (US\$6,807.30 - US\$4,960.40); myocardial infarction (US\$13,330.30 - US\$7916.70); ischemic stroke (US\$6,427.20 - US\$3125.00) and heart failure (US\$7,221.70 - US\$4,152.80). In average, Brazilian and Mexican overall costs were among the highest, as opposed to Argentina and Costa Rica which were among the countries with lowest costs. Indirect costs followed the same trend (less than 15% of total direct costs). **CONCLUSIONS:** Unexpected event costs associated with pain relievers could raise the economic burden of OA and RA significantly in LA. Thus, these findings could help decision makers to identify cost-effective pain therapies in markets where this cost data is unavailable.

PMS21

ECONOMIC OUTCOMES FOR CELECOXIB IN LATIN AMERICA: A COST-EFFECTIVENESS STUDY OF COX-2 INHIBITORS AGAINST NSAIDS+PPI FOR ADULT PATIENTS WITH OSTEOARTHRITIS AND RHEUMATOID ARTHRITIS IN BRAZIL, MEXICO, COLOMBIA, ARGENTINA AND COSTA RICA

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OBJECTIVES: Osteoarthritis (OA) and rheumatoid arthritis (RA) are conditions that are associated with significant clinical burden and impact patients' functional status and quality of life. Medical costs related to treating these common and disabling conditions place an economic strain on health care systems. The aim of this assessment is to compare celecoxib against nonselective nonsteroidal anti-inflammatory drugs (nsNSAIDs) plus proton pump inhibitors (PPI) in five Latin American markets from the public payer's perspective. **METHODS:** A cost-effectiveness evaluation was performed using a Markov modeling approach within a five-year time horizon (twelve-week cycles). The model compares celecoxib (200mg bid) against nsNSAIDs (naproxen 500mg/bid; diclofenac 100mg/bid) alone and combined with PPI (omeprazole 20mg/day). Model results were subdivided into two risk subpopulations: a) patients at low risk of GI and CV events (age 55+ with no prior risk factors); b) patients at high risk (age 65+ with previous risk factors). Efficacy and safety were retrieved from clinical literature (CONDOR Trial) and model uses Quality-Adjusted Life Years Gained (QALYs) as effectiveness measurement. Resource use and medical cost data was collected from local official databases and public hospital records from each LA market (expressed in 2012 US\$). Costs and consequences were discounted at 5% annually and probabilistic sensitivity analyses (PSA) were conducted. **RESULTS:** Celecoxib showed the highest health benefits (4.488 QALYs) compared to diclofenac (4.308 QALYs, +PPI 4.392 QALYs) and naproxen (4.241 QALYs, +PPI 4.355 QALYs). Regarding medical costs, in Brazil and Mexico celecoxib showed to be a cost-saving strategy within the high risk subpopulation. In other LA markets, celecoxib resulted as a cost-effective option with an average ICER of US\$11,239.50 and US\$8,046.20 in low and high risk subpopulations, respectively. PSA support robustness of the results. **CONCLUSIONS:** Despite higher acquisition cost compared to nsNSAIDs, celecoxib was found to be a cost-effective therapy for patients with OA and RA in multiple LA health care systems.

PMS22

ECONOMIC BURDEN OF OSTEOPOROTIC FRACTURE IN ELDERLY IN SOUTH KOREA

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OBJECTIVES: Osteoporotic Fractures (OF) in elderly people are common worldwide, and the predicted aging of populations is increasing the burden of OF

on health care systems. This study estimates the economic burden of OF in aged 65 years and over in South Korea from a societal perspective. **METHODS:** National health insurance claim databases were used to analyze annual health care utilization and medical costs of OF in the South Korean population (49.78 million). We identified medical claims records for elderly people with a diagnosis of OF and estimated the costs by a macro-costing method from 2007 to 2011. **RESULTS:** From 2007 to 2011, there were 244,798 elderly patients with at least 1 medical insurance claim related to OF. Most patients had a single fracture (83%), while 17% of all patients had two or more. By fracture site, vertebral fracture accounted for 76.3% of all fractures, followed by 9.9% for hip fracture and 7.5% for wrist fracture. The societal cost of OF increased annually, from \$83.7 million in 2007 to \$141.4 million in 2011. For the societal cost of OF, direct medical cost was \$134.9 million in 2011, which includes cost of treatment (\$88.3 million) and long-term care (\$46.6 million). The direct non-medical cost (transportation and caregiver costs) was estimated at \$6.5 million in 2011. Costs associated with morbidity and mortality of OF were excluded due to the characteristics of the patients such as age, disability level and age at death. **CONCLUSIONS:** The results of this study indicate that the economic burden associated with OF in elderly people in Korea is considerable and is expected to rise with the predicted increases in life expectancy and the number of elderly in South Korea. Therefore, effective management of the disease is necessary to reduce the growth in the economic burden of OF.

PMS23

DRUG USE AND COST EVALUATION IN RHEUMATOID ARTHRITIS PATIENTS

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OBJECTIVES: To describe drug use, drug switch and cost evaluation in patients with rheumatoid arthritis (RA). **METHODS:** Data derived from ARNO Observatory, an Italian population-based patient-centric system through record linkage of 11 million inhabitants. In a sub-cohort of 5,821,337 people, we identified 15,082 subjects with rheumatoid arthritis in 2011. Data were retrieved for all these patients back to 2010 in order to estimate disease incidence. A cohort matched by sex, age and local health unit was computed to estimate differences in health costs. **RESULTS:** Prevalence of RA was 0.26% with an average age of 62 years and a percentage of women of 77%. Incidence is about 0.03% per year. The cost per-person is €2,823 per year, 128% more in comparison with pair-matched group. This cost is for €1,230 due to drugs (€564 specific drugs, €666 others), €1,024 due to hospitalization and €569 due to lab tests and diagnostic examinations. Most common drugs are methylprednisolone+prednisone (63% treated), methotrexate (47.2%) and hydroxychloroquine (31.6%). Biological drugs are used by 3% of patients, but this percentage is increasing by years. Patients treated with biological drugs cost three times higher than others. Patients usually start first treatment with methylprednisolone+prednisone (46.6%), 25.2% start with methylprednisolone+prednisone and other specific drugs and 12.1% with methotrexate. One year after the first treatment only 40.1% of patients continue receiving the same treatment, 41.4% add a specific drug, 11.7% leave therapy and 6.8% switch to another specific drug. **CONCLUSIONS:** This administrative database is an important source of information that is able to show both economical indicators and the good practice of treatment. In this study, they point out an elevated cost per-person in drugs assumption and show very current tendency to switch therapy in the first year.

PMS24

MEDICAL COSTS OF PATIENTS WITH RHEUMATOID ARTHRITIS AND ITS ASSOCIATION WITH GLOBAL DISEASE ACTIVITY IN TURKEY

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OBJECTIVES: To identify factors associated with the cost of RA care and calculate risk-adjusted costs associated with RA in Turkey. We also examined the relationships between costs of RA treatment and global disease activity. **METHODS:** This cross-sectional study was performed in 10 university rheumatology centers. Eligible patients were ≥18 years of age and diagnosed with RA for at least 12 months according to the American College of Rheumatology (ACR) 1987 criteria. Generalized linear models were used to calculate risk-adjusted direct costs. After using the Park test, the Gamma family with log link was chosen for the model. Age, gender, region, RA-related medication use and comorbidities such as diabetes, cardiovascular and respiratory disease, allergy and surgery were controlled in the model. Costs were adjusted by exchange rate of €1=2.30 Turkish Lira. **RESULTS:** A total of 698 patients (82% female; mean age: 51.2±13.17 standard deviation [SD] years) were studied. Patients' visual analog scale (VAS), patient's global disease activity (GDA) and routine assessment of patient index data 3 (RAPID-3) scores were on average 44.15, 5.19 and 5.10 respectively. Most patients were prescribed immunosuppressive medication and glucocorticoids (87.8% and 61.2%, respectively). Risk adjusted costs were estimated as €2,671. The most significant portion of overall expenditures was due to pharmaceutical costs €1987, while outpatient costs were €303, inpatient costs were €360 and co-payments were €21. 14% of patients experienced work loss due to RA. On average, annual costs due to workday loss were €480. 5.4% of patients also had other RA-related consultations, which were not covered by

insurance, bringing the average annual burden to €1600 for these patients. **CONCLUSIONS:** The annual medical cost of RA is significantly lower in Turkey relative to European estimates. With higher expenditures, there is a potential for a decrease in disease activity.

PMS25

ANKYLOSING SPONDYLITIS HEALTH CARE COSTS AND ASSOCIATED DISEASE ACTIVITY SCORES IN TURKEY

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OBJECTIVES: To explore the direct health care resources associated with ankylosing spondylitis (AS) in Turkey, and establish how treatment intensity, proxied by AS treatment expenditures, affects disease activity. **METHODS:** Medical records of 650 prevalent AS patients attending seven centers at tertiary health care institutions nationwide were examined to assess the annual direct health care costs. Eligible patients were age ≥ 18 and diagnosed with AS for at least 12 months. To identify direct costs, overall costs were categorized as inpatient, outpatient, pharmacy and copay. Generalized linear models were used to determine factors affecting annual health care costs. Costs were adjusted by exchange rate of €1=2.30 Turkish Lira. **RESULTS:** The average patient age was 40.1 \pm 11.33 standard deviation (SD) years and 35% of AS patients were female. Average disease duration was 7.9 years and more than 25% of patients suffered from at least one comorbidity. 7.54% of AS patients received inpatient care, 92.77% received outpatient care and 95.23% were prescribed at least one medication. 66.77% of patients were prescribed disease-modifying antirheumatic drugs (DMARDs). The mean (median) annual cost per patient was €6,059 (€6,825). The most significant portion of overall expenditures was due to drug cost (€5,728), while outpatient costs totaled €254 and inpatient costs €68. Copayments were relatively low at €12.3. Age and gender had no effect on annual health care costs. 54.92% of AS patients experienced work loss due to their condition. On average, annual cost due to work loss was calculated at €412. Two percent of patients also had other AS-related consultations, which were not covered by insurance. The average annual burden for these patients was €2482. **CONCLUSIONS:** Inpatient and outpatient costs for AS patients are lower in Turkey relative to other European countries. Treatment intensity inversely affects GDA, indicating that GDA can be improved by increasing treatment intensity.

PMS26

LONG-TERM COSTS OF BIOLOGICS IN THE TREATMENT OF PSORIATIC ARTHRITIS IN THE UNITED STATES

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OBJECTIVES: The introduction of biologic therapies has dramatically changed the management of psoriatic arthritis (PsA). The study aimed to estimate long-term costs of biologics in the treatment of psoriatic arthritic patients in the United States. **METHODS:** We developed a 10-year Markov model describing the treatment pathway of patients with psoriatic arthritis who had failed prior oral DMARD therapy, using monthly cycles. Clinical efficacy data were obtained from published pivotal study results and literature. Costs, resource utilisation and treatment pathways were obtained from literature and expert opinion. Patients transitioned through two lines of biologics (etanercept, infliximab, golimumab or adalimumab as first or second line) followed by best supportive care. Response to therapy was defined as the probability of PsARC response at the end of the trial period. Patients transitioned to the next line of therapy in case of non-response or discontinuation due to other causes (a short-term annual drop-out rate of 32% and a long-term rate of 16.5% were assumed). All-cause death was included and adjusted to reflect the increased mortality associated with PsA. Treatment and administration, monitoring, and hospitalisation costs were included. An annual discount rate of 3% was used. Probabilistic sensitivity analysis was conducted on key model parameters. For each first-line biologic option, average results across second-line biologic therapies were reported. **RESULTS:** From a third-party payer's perspective, the estimated 10-year cumulative direct costs per patient were \$214,642 (95% CrI: \$214,171; \$221,074) with etanercept as first-line biologic therapy, \$203,140 (95% CrI: \$202,632; \$208,398) with infliximab, \$218,703 (95% CrI: \$217,992; \$224,255) with golimumab and \$208,840 (95% CrI: \$208,192; \$215,014) with adalimumab. Across scenarios, drug costs represented between 89.4% and 91.1% of total costs, monitoring costs between 4.5% and 6.3%, and hospitalisation costs between 4.3% and 4.9%. **CONCLUSIONS:** Biologic therapies represent a significant cost burden to payers.

PMS27

HEALTH CARE COSTS ASSOCIATED WITH FIRST- AND SECOND-LINE SWITCHING OF BIOLOGIC DISEASE-MODIFYING ANTIRHEUMATIC DRUGS

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OBJECTIVES: To determine health care costs of patients with rheumatoid arthritis (RA) from a single health plan who switch first- and second-line biologic disease-modifying antirheumatic drug (bDMARD) therapy. **METHODS:** This

observational, retrospective analysis utilized administrative claims from a large, commercial health plan database containing insured beneficiaries between January 1, 2006 and December 31, 2010. The first-line population consisted of patients with RA, newly initiated on abatacept, etanercept, infliximab or adalimumab, with 12 months of continuous follow-up. A new second-line patient cohort was defined as those initiating a bDMARD with evidence of a different bDMARD up to 2 years prior to index date. Switching was defined as a different bDMARD claim within a 200% gap in days supply from the previous bDMARD claim. The days supply for bDMARDs was imputed based on the product label. Among switchers, the post-index period was divided into post-initiation pre-switch and post-switch periods. All post-index costs were monthly and calculated only for the time the patient was on a bDMARD. Bivariate and multivariate statistical analyses were conducted to determine costs of bDMARD switchers versus non-switchers. **RESULTS:** Patients who switched first-line bDMARD therapy had higher baseline monthly health care costs than non-switchers (\$2417 vs. \$2081; $p < 0.001$). Post-index, first-line switchers had significantly higher costs after switch than non-switchers (\$6081 vs. \$4415), as did second-line switchers (\$8376 v.s \$5625). After controlling for potential confounders, post-switching costs were increased by 35% (least squares [LS] mean \$5693 vs. \$4224; $p < 0.001$) for first-line switchers and by 46% (LS mean \$7799 vs. \$5348; $p < 0.001$) for second-line switchers, versus non-switchers. **CONCLUSIONS:** Compared with non-switchers, health care costs are significantly higher for both first- and second-line switchers following switch. These findings reinforce the importance of understanding the implications associated with switching bDMARD therapy.

PMS28

THE PHARMACOECONOMIC AND HEALTH RELATED QUALITY OF LIFE IN RHEUMATOID ARTHRITIS (RA) PATIENTS IN A TERTIARY CARE HOSPITAL

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OBJECTIVES: To determine the average cost of treatment incurred, to perform pharmacoeconomic analysis of drug therapy and to study changes in patient economic burden with disease activity for RA patients. **METHODS:** The study design was observational. Patient's bill and insurance status was collected from the finance department for 250 RA patients. Inclusion and exclusion criteria were followed as per the ACR Guidelines (1987 and 2010). Patient drug therapy and disease activity were recorded from individual CRF& hospital records. **RESULTS:** Of 250RA patients female to male ratio was found to be 3:1. 67% of patients admitted were ages b/w 40-60years. The average days of hospitalization was found to be 7 days with average bed charges of INR 649 per patient. The total cost of therapy incurred per patient was INR 8961. The highest contribution was made by medications (INR 1920/patient), biochemical investigation charges (INR1561), doctor fees (INR1006), X-ray charges (INR385), physiotherapy procedures (INR320). These charges were found to vary within the patient population group based on the stage of the disease & presence/absence of co-morbid conditions. **CONCLUSIONS:** Medication costs along with investigation charges are the highest contributors to the total expenses incurred by RA patients & has direct impact on HRQOL. These costs seem to vary from patient to patient based on Disease Activity Score and also presence of co-morbid conditions. Hence it becomes vital to diagnose and control the disease at an early stage to control the economic burden on the patient.

PMS29

COST OF BEST SUPPORTIVE CARE IN THE TREATMENT OF MODERATE-TO-SEVERE PSORIATIC ARTHRITIS IN THE UNITED STATES

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OBJECTIVES: To describe the best supportive care costs of psoriatic arthritis patients following discontinuation of DMARD therapy. **METHODS:** Adult patients with ≥ 2 PsA diagnoses (from office visits) with continuous insurance coverage ≥ 6 -month before (baseline period) and ≥ 12 -month post-index date were selected from the MarketScan Commercial and Medicare Claims database (2005-2009). The index date was defined as the last day of DMARD coverage. Discontinuation was defined as no DMARD treatment for ≥ 12 consecutive months from the last day of DMARD prescription coverage. Patients were classified as having discontinued from a biologic if there was evidence of biologic DMARD use during the baseline period; otherwise they were defined as having discontinued from non-biologic DMARD. Twelve-month average costs following discontinuation were reported. **RESULTS:** A total of 1656 PsA patients met the selection criteria; 63.2% were discontinued on non-biologic DMARD therapy and 36.8% on biologic therapy. Of non-biologic DMARD users, 59.7% were on methotrexate and 40.3% on other DMARDs. Over the 12-month period following discontinuation, total costs were \$14,359 (SD: 23,375) and \$10,144 (SD: 17,312) for biologic and non-biologic users, respectively ($p < 0.001$). Outpatient and hospital/ER costs were significantly higher for the biologic discontinuers compared to the non-biologic discontinuers (\$7,606 vs. \$5,429, $p = 0.002$, and \$3,439 vs. \$2,066, $p < 0.013$, respectively) and accounted for 77% and 74% of total costs, respectively. Similarly, biologic users had higher drug costs (\$3,314 vs. \$2,649, $p < 0.002$, respectively). **CONCLUSIONS:** This study suggests that outpatient and hospital/ER costs account for a substantial proportion of health care costs in PsA patients who discontinued from DMARD therapy. Patients who had discontinued from biologic DMARD therapy incurred higher outpatient, hospital and drug costs compared to patients who had discontinued from non-biologic DMARD therapy.