PMS19
TREATMENT MODIFICATIONS AND COSTS OF BIOLOGIC THERAPY IN PATIENTS WITH ANKYLOSING SPONDYLITIS
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OBJECTIVES: Limited information exists on real-world use of biologic agents in ankylosing spondylitis (AS). This study evaluated the treatment patterns and costs of biologic therapy and disease-modifying antirheumatic drugs (DMARDs) in AS patients. METHODS: MarketScan claims databases were used to identify biologic treatment-naive AS patients (≥18 years of age with no biologics in the past 6 months) who initiated biologic treatment between 10/1/2009 and 09/30/2010. Frequency of biologic switching, duration, modification of treatment, and medical and pharmacy drug costs for each line of biologic therapy was analyzed during the 3-year follow-up. RESULTS: A cohort of 339 AS patients was identified. First-line biologics were etanercept (n=140), adalimumab (n=137), infliximab (n=41), golimumab (n=4). After the first 24-month observation period, 10% of AS patients switched biologics. Patients who switched to second- or third-line biologics incurred greater pharmacy costs ($4,376 vs. $4,077). CONCLUSIONS: Treatment modifications in AS patients are frequent and can increase costs.

PMS20
LONG-TERM FAILURE RATES ASSOCIATED WITH KNEE MICROFRACTURE SURGERY
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OBJECTIVES: Information is limited regarding the interim and long-term outcomes associated with knee microfracture surgery. The objective of this study was to evaluate failure rates 1 year, 3 years, and 5 years after knee microfracture surgery in an administrative claims database. METHODS: Beneficiaries with knee microfracture surgery between 10/1/2007 and 9/30/2008 (index surgery) and continuous enrollment 24 months prior to surgery were included. Diagnoses were identified using ICD-9 diagnostic codes. Outcomes were determined using ICD-9 procedure codes. RESULTS: A total of 722 knee microfracture surgeries were identified. The 1-year failure rate was 2.9%, the 3-year failure rate was 11.1%, and the 5-year failure rate was 18.2%. CONCLUSIONS: Knee microfracture surgery has high failure rates 1 year, 3 years, and 5 years after initial surgery. The aim of our nationwide observational cohort study was to evaluate the long-term outcome of knee microfracture surgery. We restricted our analysis to patients with knee microfracture surgery who were continuously enrolled for 24 months after the index surgery. Our results suggest that knee microfracture surgery has high failure rates even after 5 years of follow-up. Future studies are needed to evaluate the long-term outcomes of alternative treatments for patellar chondral defects.

PMS21
EVALUATION OF PROGNOSTIC FACTORS FOR CONTRALATERAL HIP FRACTURE AMONG ELDERLY WOMEN IN HUNGARY: A 8-YEAR NATIONWIDE STUDY
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OBJECTIVES: Hip fracture is the most serious consequence of osteoporosis with significant financial and personal costs. Our aim was to determine the significance of demographic and clinical factors for contralateral hip fracture among elderly women. METHODS: In our retrospective observational cohort study women aged 60 years and over treated with primary femoral neck fractures in the year 2000 and suffered from contralateral hip fracture between 01 January 2000 and 31 December 2008 were selected from the database of the Hungarian National Health Insurance Fund. Patients’ data concerning their age, gender, place of living, type of primary fracture, comorbid medical diseases, surgical intervention for primary fracture and hospital providing treatment for primary hip fracture were evaluated. Multinomial logistic regression was used to assess the relationship between demographic and clinical factors and the risk of contralateral fracture. RESULTS: 312 patients were included in the study. The mean age of the patients was 78.1±7.2 years, 76.1% were female. Alcohol consumption was significantly associated with the risk of contralateral hip fracture. The odds of developing a contralateral hip fracture were 1.56(0.23) times greater in patients who consumed alcohol compared to those who did not consume alcohol. CONCLUSIONS: These findings suggest that lifestyle factors such as alcohol consumption may play a role in the development of contralateral hip fracture. Further studies are needed to confirm these findings and to identify other factors that may influence the risk of contralateral hip fracture.

PMS22
INCREMENTAL RISK OF OSTEOPOROSIS AMONG HIV-POSITIVE ADULTS AGES 18-49
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OBJECTIVES: Bone loss is a common problem occurring among human immunodeficiency virus (HIV) positive patients. Explanations for the bone loss are unknown. We estimated the prevalence of osteoporosis among HIV-positive adults ages 18-49 versus matched HIV-negative adults; and ranked predictors for osteoporosis in terms of their relative importance. METHODS: A national longitudinal study of the 2005-2010 National Health and Nutrition Examination Survey (NHANES). HIV-positive individuals were identified according to HIV antibody test. Bone mineral density (BMD) T-score of femur neck was calculated based on the mean of the 19-24 year cohort and T-score by sex and race. RESULTS: 52 HIV-positive individuals were identified. In the matched cohort 46 HIV-positive and 18 HIV-negative adults were included. The mean age of the matched cohort was 39.5±9.4 years, and 51% were male. No osteoporosis was observed in either case group or control group. The prevalence of osteoporosis was 7.3% versus 1.7% among the cases compared to controls. Osteoporosis occurred only among males in the cases and females in the control group. The main predictor of osteoporosis, followed by activity intensity (ρ=0.003), family history of osteoporosis (p=0.007), and HIV itself (p=0.026), after controlling BMI and smoking status. CONCLUSIONS: HIV itself is a significant predictor for osteoporosis; but due to lack of information on treatment history, it remains unclear if HIV medicine or treatment duration can increase the risk of osteoporosis.

PMS23
MULTINOMIAL LOGISTIC REGRESSION ANALYSIS OF RISK FACTORS INFLUENCING THE TIME UNTIL SECONDARY HIP FRACTURE
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OBJECTIVES: The risk of subsequent hip fracture is increased in presence of previous hip fracture and contralateral fracture. Healthcare costs for secondary hip fracture are increased compared to costs after the initial hip fracture. The aim of our nationwide retrospective observational cohort study was to evaluate the factors that influence the time until subsequent hip fracture. METHODS: Patients 60-90 years old and treated with primary femoral neck fractures in the year 2000 and suffered from contralateral hip fracture between 01 January 2000 and 31 December 2008 were selected from the database of the Hungarian National Health Insurance Fund. Patients’ data concerning their age, gender, place of living, type of primary fracture, comorbid medical diseases, surgical intervention for primary fracture and hospital providing treatment for primary hip fracture were evaluated. Multinomial logistic regression was used to assess the relationship between demographic and clinical factors and the risk of secondary hip fracture. RESULTS: 312 patients were included in the study. The mean age of the patients was 78.1±7.2 years, 76.1% were female. Alcohol consumption was significantly associated with the risk of secondary hip fracture. The odds of developing a secondary hip fracture were 1.56(0.23) times greater in patients who consumed alcohol compared to those who did not consume alcohol. CONCLUSIONS: These findings suggest that lifestyle factors such as alcohol consumption may play a role in the development of secondary hip fracture. Further studies are needed to confirm these findings and to identify other factors that may influence the risk of secondary hip fracture.

PMS24
RELATIONSHIP OF SEDENTARY BEHAVIOR WITH QALYS IN COMMUNITY DWELLING ADULTS WITH OR AT RISK FOR KNEE OSTEARTHritis
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OBJECTIVES: Approximately 10% of the US population is diagnosed with knee osteoarthritis by age 60. Disability due to arthritis increases health care costs and the risk of hospitalization, institutionalization, and mortality. Decreasing sedentary behavior can improve function and may be a modality for improving quality adjusted life years (QALYS). The purpose of this study was to investigate whether varying levels of sedentary behavior (Sedentary, Sedentary-Light, Sedentary-Moderate, Sedentary-High) predicted QALYS. METHODS: This study used longitudinal data from the accelerometer study of the Osteoarthritis Initiative (OAI) collected at baseline (OAI 48-month visit) and 2-year follow-up (OAI 72-month visit). Patients were classified into four daily average daily sedentary time (QoT): Sedentary Q1: >11.6, 10.7<c<11.6, 9.7<c<10.7, least sedentary Q4:9.7<c9.7 hours). The association between sedentary behavior and QALYS was examined using median regression adjusting for age, gender, BMI. RESULTS: Average(SD) QALYS over the 5 year follow-up were 1.56(0.23), 1.61(0.20), 1.60(0.23), 1.60(0.23) for Q1-Q4 respec-
tively. QALYs were significantly lower for the most sedentary (Q1) group relative to the least sedentary groups (Q2 and Q4) adjusted for age, gender, and BMI. Furthermore, for average overweight women age 65, even an additional hour spent in sedentary behavior was associated with greater decreases in median QALYs for those who were more sedentary than those who were less sedentary (Q1: -0.041, Q2: -0.040, Q3: -0.038, Q4: 0.011; 95% CI: -0.066,0.030; Q1: -0.060,0.032). CONCLUSIONS: Persons in the most sedentary group suffered the greatest QALY losses. Study results support interventions targeting the most sedentary persons in reducing this behavior.

**MUSCULAR-SKELETAL DISORDERS – Cost Studies**

**PMS25**

**VALIDATION OF A BUDGET IMPACT MODEL FOR USE OF DENOSUMAB IN POST-MENOPAUSAL WOMEN WITH OSTEOPOORESIS**

**Methods**: BIM was evaluated using face validity, internal validity and cross validity tests. Face validity of the model was assessed by comparing the underlying Markov model with prior published osteoporosis literature. Cross validity tests were conducted on the following input parameters: patient demographics, treatment persistence rate, and direct medical costs of fractures. RESULTS: In a base case analysis, increasing utilization of denosumab from 2%, 19.6% of eligible patients in year 3 compared with a 0% increase. CONCLUSIONS: This BIM is well validated and can serve as a useful tool to assess the potential impact to a US health plan’s budget of increased denosumab utilization up to 19.6% of eligible patients in year 3 compared with a

**PMS26**

**BUDGET IMPACT ANALYSIS OF BOTULINUM TOXIN TYPE A THERAPY FOR UPPER LIMB SPASTICITY IN HONG KONG**

**Methods**: A budget impact model was developed using up-to-date epidemiological data only 212,126 people survive by the 1st year of the study. The results of the BIM model used in expert consensus developed by Ministry of Health of the Russian Federation was used for calculating of medical care costs. Costs of adverse events were calculated basing on Russian clinical guidelines and published average prices. Disability pensions were calculated from Russian Pension Fund database. GDP loss was based on the GDP information from World Bank. For acceptability analysis, accepted exchange rate was 1 US$ = 62.09 RUB. RESULTS: AbobotulinumtoxinA treatment in whole population of PsA patients in Russia will result in a US$ 183.1 million economy compared with IncobotulinumtoxinA and will result in US$ 756 economy for 1 year compared with onabotulinumtoxinA, US$ 737 economy compared with incobotulinumtoxinA per one patient. This cost reduction is mainly attributed to decrease of GDP loss, disability pensions due to the better efficacy of this BTA drug. CONCLUSIONS: Inclusion of botulinum toxin therapy is the most cost-effective treatment option in the management of post-stroke spasticity in Russia compared with other BTA medications.

**PMS29**

**RECENT COST TRENDS AMONG PATIENTS USING BIOLOGIC AGENTS FOR THE TREATMENT OF PSORIATIC ARTHRITIS**

**Methods**: Continuously enrolled adult patients with ≥2 outpatient diagnoses of PsA were selected from the MarketScan databases if their first biologic prescription date (index date) occurred between July 1, 2008, and July 31, 2013. Patients were included in the study if (1) full access was available to all medical and pharmacy claims for ≥6 months before and ≥12 months after their index date, and (2) they were biologic-naïve before index. Healthcare costs were assessed from the payer perspective and based on annual reimbursed amounts. Results were stratified by all-cause vs. PsA-related costs and within these 2 categories further subdivided into medical inpatient, medical outpatient, emergency room, and pharmacy costs. RESULTS: In total, 25,565 patients met the inclusion criteria. All-cause healthcare costs in the 6 annual cohorts increased by 11.1% between 2010 and 2013, with an average annual increase of 10.6% (or $2,867). PsA-related annual costs were estimated to increase by 63.6%, with an average annual increase of 12.7% (or $2,335). Although cost increases in all categories of interest were observed over time, the largest driver of the overall trends was the PsA-related pharmacy costs, predominantly the cost of biologic therapy, with an estimated increase of 65.6% and an average annual increase of 13.1% (or $2,220). CONCLUSIONS: For US managed care plans, PsA-related healthcare costs among patients initiated on biologic therapy for PsA has increased by 53.1%, which is mostly driven by the 65.6% change in PsA-related pharmacy costs.

**PMS30**

**MODELING OF SOCIETAL COSTS UNDER DIFFERENT TREATMENT SCHEMES OF POST-STROKE SPASTICITY IN THE RUSSIAN FEDERATION**

**Methods**: Healthcare costs were calculated as the weighted average of direct medical costs of stroke patients in private and public hospitals. As the use of tofacitinib increased from 0.9% (current scenario) to 15.3% (projected for three years) total spending is reduced in USD by 345,510 equivalent of total expenditure of this pathology in Colombia. CONCLUSIONS: The use of tofacitinib in patients who have an inadequate response to methotrexate, decreases total costs of care for the health system in Colombia.

**PMS32**

**BUDGET IMPACT ANALYSIS OF BOTULINUM TOXIN TYPE A IN A TREATMENT SCHEME OF BOTULINO TOXIN TYPE A AS THE FIRST-Choice THERAPY FOR PSORIATIC ARTHRITIS**

**Methods**: A budget impact model was developed in Excel 2013 to simulate the costs of abobotulinumtoxinA, onabotulinumtoxinA, and incobotulinumtoxinA. The total number of PsA patients in Russia was 287,334. According to the performed modeling using up-to-date epidemiological data only 212,126 people survive by the 1st year of the study. The results of the BIM model used in expert consensus developed by Ministry of Health of the Russian Federation was used for calculating of medical care costs. Costs of adverse events were calculated basing on Russian clinical guidelines and published average prices. Disability pensions were calculated from Russian Pension Fund database. GDP loss was based on the GDP information from World Bank. For acceptability analysis, accepted exchange rate was 1 US$ = 62.09 RUB. RESULTS: AbobotulinumtoxinA treatment in whole population of PsA patients in Russia will result in a US$ 183.1 million economy compared with IncobotulinumtoxinA and will result in US$ 756 economy for 1 year compared with onabotulinumtoxinA, US$ 737 economy compared with incobotulinumtoxinA per one patient. This cost reduction is mainly attributed to decrease of GDP loss, disability pensions due to the better efficacy of this BTA drug. CONCLUSIONS: Inclusion of botulinum toxin therapy is the most cost-effective treatment option in the management of post-stroke spasticity in Russia compared with other BTA medications.

**PMS27**

**BUDGET IMPACT ANALYSIS OF THE INCLUSION OF TOFACITINIB IN THE PUBLIC LIST OF REIMBURSEMENT IN THE TREATMENT OF PsA IN COLOMBIA AFTER INADEQUATE RESPONSE TO METHOTREXATE IN COLOMBIA**

**Methods**: A budget impact model was built with a time horizon of three years. The comparators were: abatacept, adalimumab, certolizumab, etanercept, infliximab, golimumab, tocilizumab, and tofacitinib. The perspective was the health system in Colombia. The model included only direct costs: drug costs and administration costs. All currency units were in USD ($ 1 USD$ = COP 1,971). A 5% discount rate was used. The number of expected cases was calculated from the budget impact of the inclusion of tofacitinib in the public list of reimbursements in Colombia. METHODS: A model was built with a time horizon of three years. The comparators were: abatacept, adalimumab, certolizumab, etanercept, infliximab, golimumab, tocilizumab, and tofacitinib. The perspective was the health system in Colombia. The model included only direct costs: drug costs and administration costs. All currency units were in USD ($ 1 USD$ = COP 1,971). A 5% discount rate was used. The number of expected cases was calculated from the budget impact of the inclusion of tofacitinib in the public list of reimbursements in Colombia. METHODS: A model was built with a time horizon of three years. The comparators were: abatacept, adalimumab, certolizumab, etanercept, infliximab, golimumab, tocilizumab, and tofacitinib. The perspective was the health system in Colombia. The model included only direct costs: drug costs and administration costs. All currency units were in USD ($ 1 USD$ = COP 1,971). A 5% discount rate was used. The number of expected cases was calculated from the budget impact of the inclusion of tofacitinib in the public list of reimbursements in Colombia. METHODS: A model was built with a time horizon of three years.