REAL-WORLD TRENDS IN THE DIAGNOSIS AND ASSESSMENT OF RHEUMATOID ARTHRITIS (RA) AMONG RHEUMATOLOGISTS IN THE UNITED STATES

Differential diagnosis, disease severity, and treatment options, and diagnostic tests. These involve varying degrees of complexity, and place demands on time and resources in routine clinical practice. The aim of this study was to assess current trends in RA diagnosis and assessment practices among US rheumatologists. METHODS: A sample of rheumatologists (N = 86) was surveyed online in an actively-managed Internet panel. Physicians were asked which diagnostic and disease severity measures they were aware of, and how often they used them. RESULTS: Physicians were mostly male (n = 62, 72.1%) and practiced in suburban areas (n = 44, 51.2%). The mean number of years in practice (post-residency) was 16.3, and the mean number of RA patients seen per month was 136.5. Physicians treated more RA patients with disease-modifying antirheumatic drugs (DMARDs) and biologics than with non-steroidal anti-inflammatory drugs (NSAIDs), COX-2 inhibitors, and corticosteroids. The most common diagnostic measure was anti-cyclic citrullinated peptide (anti-CCP) assay (97.7%). The most common disease assessments were swollen joint count (88.4%), tender joint count (87.2%), erythrocyte sedimentation rate (81.4%). C-reactive protein (77.9%), patient’s assessment of physical function (75.6%), and patient’s assessment of pain (74.4%). 54 physicians (62.7%) reported employing HRQOL questionnaires to assess patients’ well-being, the Health Assessment Questionnaire (HAQ) being the most common (43.4%). CONCLUSIONS: Though relatively new, anti-CCP assays were employed by almost all physicians for RA diagnoses. While other serum markers were often used for diagnosis, they were less likely to be used for disease severity assessment versus physical function. Although a majority of physicians used HRQOL measures, the opportunity exists for further adoption and standardization of such measures to facilitate better management of RA.

DISPARITIES IN DISEASE MODIFYING ANTI-RHEUMATOID DRUG TREATMENT IN RHEUMATOID ARTHRITIS

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OBJECTIVES: The study objective was to quantify disparities in treatment choice of disease modifying anti-rheumatoid drugs (DMARD) used in Rheumatoid Arthritis. METHODS: Retrospective cohorts were constructed from California Medicaid paid insurance claims between January 1, 1999 to December 31, 2005. Non-overlapping monthly episodes were created from pharmacy claims for biologic (adalimumab and etanercept) and standard (methotrexate, leflunomide, hydroxychloroquine and sulfa-lazine) DMARDs. Final sample included 59,788 observations on 7,025 patients. Relative risk ratios (RRR) of factors associated with DMARD treatment choice were assessed by a multinomial logit model with baseline as methotrexate treatment. Covariates included age, gender, race, location of beneficiary’s county in either Northern or Southern California, population density in beneficiaries county, exclusive fee-for-service reimbursement used in beneficiary’s county, Medicare and Medicaid dual eligibility, Elixhauser comorbidities index excluding Rheumatoid arthritis, and expenditures associated with pharmacy, out-patient, inpatient-SD, LTC, and ER visits in the three months prior to treatment. Hypothesis testing was based on robust standard errors to control intra-individual correlations. RESULTS: The mean age was 58.9 (± 14.5) years with a majority of females (84.0%) and Caucasians (37.6%). All the covariates were unbalanced between the six treatment groups. Statistically significant association was observed between choice of DMARD treatment and all the covariates. Females were less likely to use sulfa-lazine (RRR = 0.64, p < 0.001), but more likely to use hydroxychloroquine (RRR = 1.45, p = 0.001). The elderly patients were less likely to receive biologics as compared to methotrexate. Patients residing in high population density locations were more likely to receive biologic DMARDs. Hispanics were the only race more likely to receive adalimumab (RRR = 1.92, p = 0.001), as compared to Caucasians. CONCLUSIONS: Results signify marked evidence of socio-demographic disparity in DMARD treatment for RA, and also highlights the variation in DMARD utilization based on geography, and type of reimbursement.

DISPARITIES IN DISEASE MODIFYING ANTI-RHEUMATOID DRUG TREATMENT IN PATIENTS WITH RHEUMATOID ARTHRITIS AMONG RHEUMATOLOGISTS IN THE UNITED STATES

Differential diagnosis, disease severity, and treatment options, and diagnostic tests. These involve varying degrees of complexity, and place demands on time and resources in routine clinical practice. The aim of this study was to assess current trends in RA diagnosis and assessment practices among US rheumatologists. METHODS: A sample of rheumatologists (N = 86) was surveyed online in an actively-managed Internet panel. Physicians were asked which diagnostic and disease severity measures they were aware of, and how often they used those measures—for both diagnosis and disease severity assessment. RESULTS: Physicians were mostly male (n = 62, 72.1%) and practiced in suburban areas (n = 44, 51.2%). The mean number of years in practice (post-residency) was 16.3, and the mean number of RA patients seen per month was 136.5. Physicians treated more RA patients with disease-modifying antirheumatic drugs (DMARDs) and biologics than with non-steroidal anti-inflammatory drugs (NSAIDs), COX-2 inhibitors, and corticosteroids. The most common diagnostic measure was anti-cyclic citrullinated peptide (anti-CCP) assay (97.7%). The most common disease assessments were swollen joint count (88.4%), tender joint count (87.2%), erythrocyte sedimentation rate (81.4%). C-reactive protein (77.9%), patient’s assessment of physical function (75.6%), and patient’s assessment of pain (74.4%). 54 physicians (62.7%) reported employing HRQOL questionnaires to assess patients’ well-being, the Health Assessment Questionnaire (HAQ) being the most common (43.4%). CONCLUSIONS: Though relatively new, anti-CCP assays were employed by almost all physicians for RA diagnoses. While other serum markers were often used for diagnosis, they were less likely to be used for disease severity assessment versus physical function. Although a majority of physicians used HRQOL measures, the opportunity exists for further adoption and standardization of such measures to facilitate better management of RA.

DOSES AND INFUSION INTERVALS FOR INFliximab IN Patients WITH RHEUMATOID ARTHRITIS

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OBJECTIVES: To describe infliximab (IFX) doses and infusion intervals in patients with RA who are anti-TNF naïve or anti-TNF experienced. METHODS: Medical and pharmacy claims for patients ≥18 years with ≥2 RA diagnosis codes received January 2000-December 2006 were included from a database of commercial health plans. Patients were selected for selected inflammatory conditions. Anti-TNF naïve patients had no biologic use for 6 months prior to IFX. Anti-TNF experienced patients had adalimumab/etanercept prior to IFX. Infused doses were calculated by dividing the plan’s allowed amount for each IFX claim by the acquisition cost for a 100 mg vial. Results were reported for induction (weeks 0–8), maintenance (weeks 9–52), and one-year (weeks 0–52) periods. Infusion intervals included mean time (days) between infusions during the first year of treatment. RESULTS: A total of 425 naïve (mean age = 53 years; 74% female) and 467 experienced (mean age = 49 years; 78% female) patients were evaluated. The mean dose per infusion for etanercept (EG, CV, CHF, and renal) during the induction vs. maintenance period (397 mg vs. 455 mg). The mean IFX dose per infusion for one year was 437 mg. Nearly all naïve patients (98.5%) received no more than 8 infusions in the first year. The mean times between IFX infusions for naïve and experienced patients were 18, 28, 52, 30, 49, 48, and 41 days. CONCLUSIONS: This observation study reveals IFX utilization differences between anti-TNF naïve and experienced patients. Both naïve and experienced patients had infusions intervals within the recommended labeling.
scriptions were adequate in both study periods according to recent guidelines. GPA co-prescription with NSAIDs remains greatly suboptimal.

MUSCULAR-SKELETAL DISORDERS – Conceptual Papers & Research on Methods

PMS71

DIRECT INDIVIDUAL COMPARISONS OF BIOPHARMACEUTICAL THERAPIES FOR RHEUMATOID ARTHRITIS

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OBJECTIVES: To compare the efficacy results of biological therapies for rheumatoid arthritis (RA) using indirect treatment comparisons and meta-regression techniques.

METHODS: We performed a literature search to identify the randomized clinical trials (RCTs) for biologics. Using these studies we created a network and developed two random effects, logistic regression models (6- and 12-months), using the ACR-50 as the primary outcome. We chose mean disease duration and mean baseline HAQ-DI score as meta-regression covariates, to account for heterogeneity between trials, as these have prognostic value in determining the effect of RA treatment. RESULTS: We included 18 RCTs in the 6-month analysis and 10 RCTs in the 12-month analysis. Eight biologic agents are included in the 6-month analysis and six in the 12-month. The results of the 6-month analysis suggest that the eight biologic agents are significantly more effective than the comparator (p < 0.05): Certolizumab pegol, adalimumab, etanercept, etanercept + (2.6), rituximab (1.7), adalimumab (1.6), infiximab (1.6), and golimumab (1.3). CONCLUSIONS: Our results suggest that biologic treatments are more effective than placebo (0.7). The parameter values for the 12-month analysis are similar, with the effectiveness of the biologics following the same order, but more demonstrated to be more effective than etanercept (1.4), etanercept (1.2), and adalimumab (1.0). The results also indicate that methotrexate (MTX) is significantly more effective than placebo (0.7).

PMS72

A NEW METHODOLOGY TO ASSESS CLINICAL CHANGE USING CHARTS IN RHEUMATOID ARTHRITIS (RA) PATIENTS ON THE BLOCKERS

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BACKGROUND: Charting across practices for RA patients varies greatly and rarely uses formal measures to assess treatment effectiveness. RESULTS: A rating scale can be applied by experienced clinicians and used for comparative effectiveness research. CONCLUSIONS: A rating scale can be applied by experienced clinicians and used for comparative effectiveness research.

A136

PMS73

OPERATIVE RISK OF STAGED BILATERAL KNEE REPLACEMENT IS UNDER-ESTIMATED IN RETROSPECTIVE STUDIES

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OBJECTIVES: Surgical options for patients with symptomatic bilateral knee osteoarthritis are 1) simultaneous bilateral total knee arthroplasty (BTKA) under one anesthesiologist and 2) staged total knee arthroplasty (STKA) with two distinct operations separated by a few days up to one year. A number of studies have compared post-operative complications after BTKA versus STKA by simply collecting and then contrasting outcomes collected retrospectively. However, this methodology is biased because it fails to account for the patients who had STKA planned but who never completed the second stage because they died or developed a serious post-operative complication after the first operation, leading to cancellation of the second STKA. The purpose of this study was to demonstrate the misclassification bias associated with simply comparing operative outcomes after BTKA versus STKA. METHODS: To demonstrate the bias, a mathematical derivation and graphical presentation were developed. RESULTS: First, we demonstrated that the observed proportion of complication (P-(OBS)) in patients who completed both STKA operations underestimates the true proportion of complication (P-(TRUE)). Second, we graphically demonstrated that STKA always appears to be safer than BTKA even if the proportion of post-operative complications observed is held constant. When the parameter values are simulated using a true odds ratio of 1, the observed odds ratio ranged from 0.899 to 0.557 for various combination of other probabilities. CONCLUSIONS: Most published studies have reported that post-operative complications are lower for STKA compared with BTKA. However, our analysis indicates that any conclusions should be drawn with caution. When data from retrospective analysis of subjects who successfully completed STKA is biased because it includes only cases that recovered after the first operation rather than all of the patients that had STKA planned. Absent a prospective study, the only fair and unbiased comparison of post-operative complications between STKA and BTKA requires adjustments to account for this bias.

PMS74

USE OF A DISEASE-SPECIFIC INSTRUMENT IN ECONOMIC EVALUATIONS: MAPPING WOMAC ONTO THE EQ-5D UTILITY INDEX

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OBJECTIVES: To map the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) onto the EQ-5D utility index in patients with knee osteoarthritis (OA). METHODS: A consecutive sample of patients (n = 238) with diagnosed knee OA completed both the WOMAC and the EQ-5D. Regression models with ordinary least squares (OLS) or the censored least absolute deviations (CLAD) as the estimator were used to establish the mapping model. RESULTS: The WOMAC was represented as explanatory variables in four ways: (a) total score; (b) domain scores (i.e., pain, stiffness, and physical function); (c) domain scores plus pairwise interaction terms to account for possible nonlinearities; and (d) individual item scores. Goodness-of-fit criteria included mean absolute error (MAE, the primary criterion) and root mean squared error (RMSE) obtained using an iterative random sampling procedure. Prediction precision was evaluated at individual patient level and at the group level. RESULTS: The model using OLS estimator and WOMAC domain scores as explanatory variables had the best fit and was chosen as the preferred mapping model. The prediction error at individual level exceeded the maximal tolerance value (i.e. the minimally important difference of EQ-5D) in about 16% of patients. At group level, the width of 95% CI of prediction errors varied from 0.0176 at a sample size of 400 to 0.0359 at a sample size of 100. CONCLUSIONS: EQ-5D scores can be predicted using WOMAC domain scores with an acceptable precision at both the individual and group levels in patients with mild to moderate knee OA.

PMS75

METHODS FOR INTERPRETING TUMOR NECROSIS FACTOR (TNF) BLOCKER DOSING AND TREATMENT PATTERNS FROM PHARMACY AND PROFESSIONAL CLAIMS

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OBJECTIVES: Despite using fully adjudicated claims, analyzing biologics treatment patterns requires reliable data cleaning and imputation methods for both pharmacy and professional claims. Self-injected agents with longer dosing intervals present unique challenges for data analysis. We developed methods to improve interpretability while minimizing data loss using TNF blocker claims. METHODS: A large health plan claims database was used to obtain 3,723 Psoriasis and/or Psoriatic Arthritis subjects initiating adalimumab (ADL) or etanercept (ETN) between January 1, 2003 and March 31, 2009, and were enrolled for 360 days pre- and ≥180 days post-index (first TNF claim). Patients were excluded if they had other inflammatory disorders pre- or post-index or received any biologic pre-index. We reviewed patients’ drug dispensing histories, established acceptable ranges for key claim values, and developed imputation rules that leveraged allowed reimbursements and dispensed quantities when other values were discrepant or missing. For professional claims, we divided total doses across weeks between fills to obtain average weekly dose. RESULTS: A total of 89.2% of 46,206 ETN and 94.6% of the 3,470 ADL claims were from pharmacies. 9.7% subjects with ≥1 reimbursed amounts on index were excluded, as were 0.9% with extreme quantity values (≥1,000 mg for ETN; ≥50 mg for ADL) and 1.0% patients with extreme weekly dose values in any claim (≥250 mg for ETN, ≥200 mg for ADL). 8.8% subjects had 1-year claims, which were scored in descending order of charge, allowed, and paid, with the top claim tertiles (1%) subjects removed from the dataset. CONCLUSIONS: Analyzing TNF blocker treatment patterns from claims requires adjustments for weekly dosing schedules and for professional claims that reflect dispensing of supplies for home injection. However, the limited dosing schedules for ADL and ETN allows using baseline dosing strategies that address these challenges while retaining the vast majority of data.