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

PMT1 DIRECT INTERVENTION COMPARISONS OF BIOPHARMACOLOGICAL THERAPIES FOR RHEUMATOID ARTHRITIS

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OBJECTIVES: To compare the efficacy results of biotherapies 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) and non-randomized studies (NRCS). 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): Cetilizumab (log odds ratio, median OR = 2.6), rituximab (1.7), adalimumab (1.6), etanercept (1.4), golimumab (1.3), abatacept (1.2), and anakinra (1.0). The results also indicate that methotrexate (MTX) is significantly 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 demonstrably superior to MTX and anakinra.

CONCLUSIONS: Our results suggest that biologic treatments are more effective than MTX or placebo, but they may differ from one another. There are differences in the outcomes depending on whether we evaluate the ACR-50 at 6 months or 12-months. Biologic agents seem to be more effective with longer disease duration.

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

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OBJECTIVES: To develop a tool to assess treatment effectiveness in real-world practice using information commonly found in charts. METHODS: From an ongoing chart audit, a sample of ten de-identified charts of RA patients initiating TNF blocker treatment was reviewed by four clinical rheumatologists to determine useful variables commonly found in charts. National guidelines were reviewed to determine which variables are used to assess treatment effectiveness in clinical trials. A scale was created and defined for each variable. Criteria to assign an overall outcome change score from baseline through follow-up were created. Three additional rheumatologists were added to test the reliability of the scale using 51 additional charts. Each chart was reviewed by two pairs of rheumatologists. Sufficient inter-rater reliability could not be achieved due to lack of consistent data, so differences in ratings were reconciled by discussion between raters 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.

RESULTS: The model using OLS estimator and WOMAC domain scores as explanatory variables had the best fit and was chosen as the preferred modeling map. The prediction error at individual level exceeded the maximal tolerance value (i.e. the minimally important difference of EQ-SD) 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-SD 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.

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 3,725 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 210 days post-index (first TNF claim). Patients were excluded if they had other inflammatory arthritis 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 ≥20 reimbursed amounts on index were excluded, as were 0.9% with extreme quantity values (>48/16 for ETN pharmacy/professional claims, >12 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 same-day claims, which were scored in descending order of change, allowed, and paid, with the top claim remaining. After these steps, 3,065 (13%) subjects remained for analysis. 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 allow uniform dosing strategies that address these challenges while retaining the vast majority of data.