CHARACTERISTICS OF SWITCHING BIOLOGICAL DISEASE-MODIFYING ANTIMICROBIAL DRUGS IN PATIENTS WITH RHEUMATOID ARTHRITIS FROM REAL WORLD DATA

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OBJECTIVES
Clinical trials have demonstrated the efficacy of biological disease-modifying antirheumatic drugs (bDMARDs) over traditional conventional synthetic DMARDs (cDMARDs) in patients with rheumatoid arthritis (RA). However, many patients on bDMARDs fail to have a clinical response or achieve remission and are treated with different DMARDs consecutively, often with little rationale. Switching treatments is expensive for payers and may avoidably put patients at risk for potential adverse events (Jensenius et al., 2015). The goal of this study is to describe a treatment pathway for patients with rheumatoid arthritis and identify and compare characteristics of patients who have switched and not switched bDMARD treatments using real world data (RWD).

METHODS
RA cases were identified using the TriNetX Analytics Network, a global federated health research network providing access to electronic medical records (EMR) from over 52 million patients at 37 healthcare organizations. To explore the treatment pathway, we required patients to have at least one instance of the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) codes M05 for Rheumatoid arthritis with rheumatoid factor or M06 for Other rheumatoid arthritis documented in the EMR. Patients were also required to have been prescribed methotrexate. A line of treatment was defined as any of the following medications taken within 60 days: methotrexate, abatacept, adalimumab, certolizumab pegol, etanercept, golimumab, infliximab, tocilizumab, rituximab, or anakinra.

To explore the patient characteristics, we required patients to have at least two instances of the ICD-10 codes M05 for Rheumatoid arthritis with rheumatoid factor or M06 for Other-rheumatoid arthritis documented in the EMR at least one month apart. Patients included in this analysis also were required to have taken methotrexate at least one week before beginning bDMARD treatment and initiation of a bDMARD had to have occurred on or after January 1, 2010. Patients who had another bDMARD at least one month after the first bDMARD were considered to have switched treatments; patients who did not switch did not have any other bDMARDs after the first bDMARD.

RESULTS
Figure 1. Sunburst diagram for RA treatment distribution and switches

Figure 2. Top ten identified treatments

Figure 3. Distribution of treatment use across all lines of treatment (LOT)

Table 1. Baseline patients characteristics and proportion switched

Table 2. Significantly different characteristics between patients that switched vs. not switched for three initial bDMARDs

RESULTS

The treatment pathway and treatment distributions are shown in Figures 1-3. Methotrexate was the most commonly prescribed treatment in the pathway and the most commonly prescribed first line of treatment. We identified 6,787 RA patients across 31 healthcare organizations. Of these, 1,582 patients (23%) switched bDMARDs at least once (Table 1).

Characteristics for starting on one bDMARD and switching to another bDMARD varied by the initial bDMARD and included female gender, younger age, infections or parasitic disease, depression, and ischemic heart diseases (Table 2).

CONCLUSIONS
We were able to develop a treatment pathway for patients with RA taking bDMARDs and to identify and compare characteristics of patients switching or not switching bDMARDs using RWD from EMR. These results can help inform treatment guidelines for prescribing bDMARDs to patients with RA.