

Impact of the COVID-19 Pandemic on Patients with Rheumatoid Arthritis: Data from The Ontario Best Practices Research Initiative (OBRI)

Matthew Wong-Pack, Elliot Hepworth, Mohammad Movahedi, Claire Bombardier, Arthur Lau, Sibel Aydin

Background: The COVID-19 Pandemic had created challenges for patients with rheumatoid arthritis (RA), such as the difficulties accessing the health care system, transition to unplanned virtual care, reduction in physical activity, patients' concerns about medication risk and compliance, lack of social supports, and interaction with loved ones. This impact on patients with RA is complex and yet to be explored.

Objectives: We examined the impact of the COVID-19 pandemic on patients with RA by comparing patient reported outcomes (PROs) and disease activity (DA), and medication profile between pre-pandemic and during the pandemic.

Methods: The Ontario Best Practices Research Initiative is an observational clinical cohort of adult patients with active rheumatoid arthritis. For this analysis, patients were included if they had at least one visit with a physician or interviewer within 12 months before and after the start of the COVID-19 pandemic (March 15th 2020). Baseline characteristics, DA, as well as other PROs (HAQ-DI, RADAI, EQ5D, and medication use / changes) were included. Paired two-sample t-test and McNamar's test was performed for continuous and categorical variables, respectively.

Results: We identified 1508 patients (mean age = 62.7, 79.3% female) that fulfilled eligibility criteria. With the pandemic, the number of physician visits per patient increased by a mean of 0.21 visits (SD:1.51) ($p < 0.0001$). Despite the patient global and physician global assessment and composite DA scores being similar before and after the pandemic, swollen joint count (SJC) and tender joint counts (TJC) showed improvement during the pandemic (differences of -0.49 (3.04), $p < 0.0001$ and -0.40 (3.73), $p < 0.003$ respectively). Similar improvement was observed in PROs, such as RADAI (-0.17 (1.40), $p = 0.002$) and fatigue (-0.48 (2.42), $p < 0.0001$). There were also statistically significant changes in the treatment algorithms as biologic (32.6% vs 29.9% $p=0.002$) and conventional synthetic DMARDs (83.3% vs 79.5%; $p < 0.0001$) usage were decreased with increased uptake in JAK inhibitors (12.1% vs 15.4%; $p < 0.0001$) with the pandemic.

Conclusions: This study demonstrates disease activity in patients with RA changed during the pandemic. Despite stable composite indices, the PROs improving with the pandemic may be explained by the change in patients' lifestyles, such as being able to work from home. We also observed an increase in number of visits, which may be a limitation of the virtual care. Changes in medications may be attributed to either patients or physicians preferring treatment modalities with a shorter half-life given the concern of immunosuppression during the pandemic or the easiness of oral therapy compared to an SC therapy that requires patients' training.