Cardiovascular Risk and Advanced Therapies Retention in Rheumatoid Arthritis: Results From the OBRI

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Objectives:
Cardiovascular disease (CVD) is highly prevalent in rheumatoid arthritis (RA) and associated with morbidity and mortality. We previously demonstrated an association between CVD risk factors and higher disease activity and disability. In this study, we explored if CVD risk factors may lead to poor RA outcomes by evaluating the association between CVD risk factors and retention of biologic and targeted synthetic disease modifying antirheumatic drugs (bDMARD, tsDMARD) among methotrexate inadequate responders (MTX-IR).

Methods:
Participants enrolled in the Ontario Best Practices Initiative (OBRI) RA registry were included if they had ≥ 2 visits within ≥12 months, had active disease (clinical disease activity index [CDAI] >10) and initiated their first bDMARD or tsDMARD. Patients were grouped based on the number of baseline CVD risk factors (0, 1 or >1), including hypertension, dyslipidemia, diabetes, obesity (body mass index ≥30) or current smoking. The primary outcome was time-to-discontinuation of a first bDMARD or tsDMARD. A multivariable Cox proportional hazards model, adjusted for relevant confounders, was used to determine the association of number of CVD risk factors and medication retention.

Results:
A total of 586 patients were included. bDMARDs were initiated in 91%, while the remainder initiated tsDMARDs. The mean (SD) age was 57 (13) years and 79% were females. Mean (SD) disease duration was 7 (8) years and mean (SD) CDAI score was 27 (11), reflecting high disease activity. The majority were seropositive (74%). At least 1 CVD risk factor was present in 38% while 27% had > 1 risk factor. Medication retention by the CVD exposure groups is shown in the Figure. Patients without CVD risk factors had significantly better medication retention with median survival of 47 months, compared to 29 and 21 months in patients with 1 or > 1 risk factors, respectively (p=0.03). The individual CVD risk factors were not found to be associated with medication retention. In multivariate analysis, the presence of 1 CVD risk factor was associated with a significantly higher risk of medication discontinuation (HR 1.37, 95%CI 1.06-1.77, p=0.01) as was the presence of ≥ 2 CVD risk factors (HR 1.40, 95% CI 1.05-1.86, p=0.02).

Conclusions:
The presence of ≥1 CVD risk factor, compared to no risk factors, is associated with reduced initial bDMARD/tsDMARD retention among MTX-IR patients. Further investigation into the possible mechanisms is required to help determine if optimizing CVD risk factors can improve medication retention and RA outcomes.

Overall survival (medication retention) of first bDMARD or tsDMARD among MTX-IR responders, stratified by number of baseline CVD risk factors