Background: Identification of predictors for successful tapering of biologics in patients with inflammatory arthritis (IA) can help to guide physicians and patients, but evidence is lacking.

Objectives: To identify possible predictors for successful tapering of biological disease modifying anti-rheumatic drugs (bDMARDs) from baseline characteristics.

Methods: BIODOPT was a randomised, open-label, equivalence trial (EudraCT 2017-001970-41) where adults with rheumatoid arthritis (RA; n=61), psoriatic arthritis (PsA; n=26), or axial spondyloarthritis (axSpA; n=55) in ≥12 months low disease activity (LDA) were randomised 2:1 to disease activity-guided tapering (n=95) or control (n=47) of which 32% (30/95) and 2% (1/47) achieved successful tapering at 18 months. A statistically significant associations (univariable p<0.10) was identified between successful tapering and tapering group, RA or PsA diagnosis, disease duration, assessing disease activity, using biologic therapy, and body mass index. Multivariable analysis was pre-defined as patients who could reduce their biologic dose ≥50% while still being in LDA. Modified Poisson regression with robust variance estimator was used for the analyses. Univariable analyses were: tapering group, sex, age, education, tobacco use, body mass index, comorbidity, arthritis characteristics i.e., diagnosis, duration, duration from diagnosis to treatment start, on ≥2 conventional synthetic DMARDs, on methotrexate, on tumour necrosis factor inhibitor (TNFi), on bDMARD, on bDMARD number ≥3, duration of bDMARD, duration of LDA on bDMARD, previous bDMARD tapering, C-reactive protein (CRP) before first bDMARD, Health Assessment Questionnaire Disability Index (HAQ-DI), Pain Visual Analog Scale (VAS), Fatigue VAS, Patient Global Health VAS, Short Form Health Survey 36 (SF-36) physical and mental component summary (PCS and MCS), tender joints, Physician Global Health VAS, CRP, and in remission. Potentially important variables (univariable p<0.10) were included in the multivariable model. C-statistics was used to assess model prediction.

Results: One-hundred-and-forty-two patients were randomised to tapering (n=95) or control (n=47) of which 32% (30/95) and 2% (1/47) achieved successful bDMARD tapering at 18 months. A statistically significant associations (univariable p<0.10) was identified between successful tapering and tapering group, RA or PsA diagnosis, disease duration, assessing disease activity, using biologic therapy, and body mass index. Multivariable analysis was pre-defined as patients who could reduce their biologic dose ≥50% while still being in LDA. Modified Poisson regression with robust variance estimator was used for the analyses. Univariable analyses were: tapering group, sex, age, education, tobacco use, body mass index, comorbidity, arthritis characteristics i.e., diagnosis, duration, duration from diagnosis to treatment start, on ≥2 conventional synthetic DMARDs, on methotrexate, on tumour necrosis factor inhibitor (TNFi), on bDMARD, on bDMARD number ≥3, duration of bDMARD, duration of LDA on bDMARD, previous bDMARD tapering, C-reactive protein (CRP) before first bDMARD, Health Assessment Questionnaire Disability Index (HAQ-DI), Pain Visual Analog Scale (VAS), Fatigue VAS, Patient Global Health VAS, Short Form Health Survey 36 (SF-36) physical and mental component summary (PCS and MCS), tender joints, Physician Global Health VAS, CRP, and in remission. Potentially important variables (univariable p<0.10) were included in the multivariable model. C-statistics was used to assess model prediction.

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References: