

Gender differences in response to biologicals.

Women fare worse across inflammatory arthritis diseases – data from BIOREG

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BACKGROUND

- Gender differences in prevalence and disease course are known in various rheumatic diseases
- Investigations of gender difference concerning therapeutic response to biological disease-modifying antirheumatic drugs (bDMARDs) and apremilast have yielded variable results

OBJECTIVE

- Investigation of gender difference in the response rate to bDMARDs and apremilast in bDMARD-naive patients
 - across rheumatoid arthritis (RA), spondylarthritis (SpA) and psoriatic arthritis (PsA)
 - in BIOREG, the Austrian Registry for biological DMARDs
- The response to individual TNF blockers was investigated

METHODS

- Data from bDMARD-naive RA-, SpA- and PsA-patients from Bioreg with a baseline (Visit 1=V1) and follow-up visits at 6 months (Visit 2=V2) and 12 months (Visit 3=V3) were included
- Response to therapy to TNF-inhibitors (TNFi) (adalimumab (ADA), certolizumab (CER), etanercept (ETA), Golimumab (GOL), infliximab (IFX)), rituximab (RIT), tocilizumab (TCZ) and apremilast (APR) was analyzed according to gender
- The remaining bDMARDs and tsDMARDs were not analyzed due to small numbers

- Key response-parameter were disease activity score (DAS28) for RA, the Stockerau Activity Score for Psoriatic Arthritis (SASPA) for PsA and the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) for SpA; additionally the Health assessment Questionnaire (HAQ) was used
- Data were analyzed in R. Statistic stratified by gender using Kruskal-Wallis and Wilcoxon tests

RESULTS

Rheumatoid Arthritis: N=477 (354 f; 123 m)

- DAS28: decreased from V1 to V2 and V3
 - V1: male: 4.38 [3.66, 5.11], female: 4.30 [3.68, 5.03], p(m/f) = 0.905;
 - V2: male: 2.66 [1.73, 3.63], female: 3.10 [2.17, 3.98], p(m/f) = 0.015;
 - V3: male: 2.25 [1.39, 3.36], female: 3.01 [1.87, 3.87], p(m/f) = 0.002
- TNF inhibitors (n=311): a significant difference between genders at V2 (Fig. 1a)
- Rituximab (n=41): a significantly higher DAS28 at baseline in females, which diminished in the follow up: V1: p(m/f) p=0.002; V2: p=0.019; V3: p=0.13
- Tocilizumab (n=63): no gender differences

DAS28 - TNF, 3 visits, stratified by gender

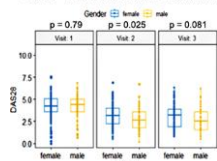


Figure 1a

BASDAI - TNF, 3 visits, stratified by gender

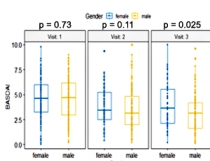


Figure 1b

Spondylarthritis N=312 (121 f; 191 m)

- BASDAI: decreased from V1 to V2 and V3
 - V1: male: 4.70 [2.88, 6.18], female: 4.80 [3.30, 6.20], p(m/f) = 0.463;
 - V2: male: 3.05 [2.00, 4.60], female: 3.64 [2.62, 5.41], p(m/f) = 0.039;
 - V3: male: 3.02 [1.67, 4.20], female: 3.65 [2.18, 5.47], p(m/f) = 0.016
- V3: a differential BASDAI in response to TNFi (n=299) was observed (Fig. 1b)

Psoriatic arthritis: N=150 (81 f; 69 m)

- SASPA decreased from V1 to V2 and V3
 - V1: male: 4.00 [2.80, 5.20], female: 4.40 [2.80, 5.80], p(m/f) = 0.399;
 - V2: male: 2.20 [1.20, 3.50], female: 3.40 [2.00, 5.00], p(m/f) = 0.071;
 - V3: male: 1.80 [0.80, 2.70], female: 3.01 [2.35, 4.80], p(m/f) = 0.001
- TNF inhibitors (n=79): significant difference between genders at V3 (Fig. 1c)
- Apremilast (n=39): significant difference only at V2 (Fig. 1d)

SASPA - TNF, 3 visits, stratified by gender

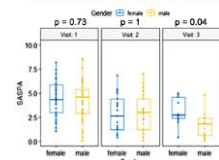


Figure 1c

SASPA (Apremilast), 3 visits, stratified by gender

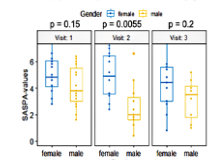


Figure 1d

HAQ response: across disease entities

- Significant difference between genders at baseline for all 3 TNFi
- ETA: significant difference up to V2 and V3
- IFX: difference significant in V1, not in V2, V3
- other TNFi: variable (Fig. 2)

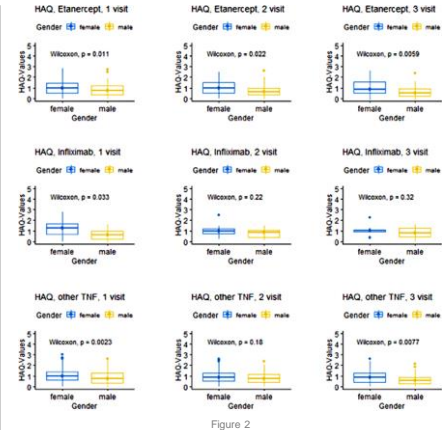


Figure 2

CONCLUSION

- Women showed statistically lower response rates to TNFi in all three diseases
- Measured by HAQ, the difference was not uniform across individual TNFi
- Gender differences were also seen in response to apremilast