Correlation Between Structural Damage and Work/Activity Impairment Among Rheumatoid Arthritis Patients

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INTRODUCTION

- Rheumatoid arthritis (RA) is a chronic inflammatory disease that primarily manifests in the peripheral joints.
- RA has a substantial negative effect on patients’ quality of life and well-being, and is associated with pain and progressive disability.
- Synovial inflammation, pannus formation, cartilage degradation, and focal bone erosions are common features of joints affected by RA.

OBJECTIVE

- The purpose of this study was to examine the relationship between structural damage in RA and work/activity impairment, functional impairment, and disease activity.

METHODS

Patient Population and Database

- Data were drawn from the Adelphi RA Disease Specific Programme (DSP), a cross-sectional survey of rheumatologists and their adult RA patients that was conducted between January and June 2014 in 15 European countries (EU5; France, Germany, Italy, Spain, and the United Kingdom) and the United States.
- The Adelphi RA DSP selected a geographically diverse sample of physicians to participate. Physicians included their next 8 consulting RA patients and provided information on patient demographics, disease severity, treatment history, concomitant conditions, and clinical outcomes via an online patient record form.
- Patients were invited to voluntarily complete a patient self-completion form. Patients’ perceptions of the impact of their disease were captured via the EuroQol EQ-5D-3L Descriptive System (EQ-5D-3L), Health Assessment Questionnaire (HAQ-DI), and Work Productivity and Activity Impairment (WPAI) questionnaires.
- The Adelphi RA DSP collected information from 1,171 RA patients and their physicians.

Assessments and Statistics

- Univariate testing using the Mann-Whitney U test examined the relationship between the presence of structural damage (including physician-reported loss of joint space, marginal bone erosion, and deep bone erosion) and the following clinical measures of disease activity: Clinical Disease Activity Index (CDAI), 3-variable Disease Activity Score in 28 joints using erythrocyte sedimentation rate (ESR) (DAS28(ESR)), and HAQ-DI score.
- These clinical measures of disease activity were calculated using information provided by the physicians; patients were not asked to calculate these measures as part of the study.
- Univariate testing was also performed to determine the relationship between structural damage and work/activity impairment, EQ-5D index score, and HAQ-DI score.
- Multivariate linear regression analyses examined the relationship between the presence of structural damage and the following measures of impairment: HAQ-DI score (higher scores indicate more disability), EQ-5D index score (lower scores indicate worse quality of life), percent activity impairment due to disease (obtained from the WPAI questionnaire; percent overall work impairment due to disease (obtained from the WPAI questionnaire).
- Multivariate logistic regression analyses examined the relationship between the presence of structural damage and employment status.
- The multivariate analyses controlled for the following demographic variables: age, gender, body mass index, ethnicity, and geographic region (EU5; US).
- Standard errors were adjusted using the Huber and White sandwich estimator of variance to allow for intragroup correlation for each reporting physician, relaxing the usual requirement that the observations be independent; in other words, patients were independent across physicians, but not necessarily for each physician.

RESULTS

Patients

- Patient characteristics (N = 1,171) are presented in Table 1.
- The distribution of structural damage among patients included in the analysis is summarized in Table 2. Overall, 53.4% (n = 618) of patients had ≥1 manifestation of structural damage: 43.1% (n = 494) of patients had loss of joint space; 27.3% (n = 322) of patients had marginal bone erosion; 18.3% (n = 217) of patients had deep bone erosion.

Disease Activity – Univariate Analyses

- Structural damage was significantly associated with higher disease activity across the 2 measures assessed (CDAI and DAS28(ESR); Table 3).

Measures of Impairment – Univariate and Multivariate Analyses

- Based on univariate analyses, structural damage was significantly associated with higher overall work impairment and higher activity impairment (Table 4). Univariate analyses also showed that structural damage was significantly associated with lower EQ-5D index scores and higher HAQ-DI scores (Table 4).

CONCLUSIONS

- A large proportion of patients with RA have moderate/severe structural damage.
- The presence of structural damage was:
  - Significantly associated with clinical measures of disease activity (CDAI, DAS28(ESR)-318) and disability (HAQ-DI)
  - Independently associated with higher activity impairment, worse quality of life (as assessed by EQ-5D index scores), greater disability (as assessed by the HAQ-DI), and unemployment, while controlling for patient demographics.
- By multivariate analysis, there was no significant association between structural damage and overall work impairment. The analysis of the impact of structural damage on work impairment may be subject to selection bias.

REFERENCES


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DISCLOSURES

All authors are employees and shareholders of Janssen. S. Sullivan and S. Blackburn are employees of Adelphi Real World.

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