15-1 Seasonal effect on rheumatoid arthritis (RA) disease activity, as analyzed based on a Japanese nationwide RA database (NinJa)

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Background/Purpose: Previous studies have suggested that environmental factors, such as weather, atmospheric temperature, humidity and seasonal change, may affect the disease activity of rheumatoid arthritis (RA). In the present study, we aimed to determine whether RA disease activity, including patient’s global assessment (PtGA), is influenced by seasonal variation, using a nationwide Japanese cohort database, NinJa (National Database of Rheumatic Diseases by iR-net in Japan).

Methods: RA patients, who were registered in NinJa, are evaluated at any point during the indicated year. We analyzed data from RA patients (n=8,726), whose PtGA, pain visual analog scale (VAS) and physician’s global assessment (PhGA) data were available in NinJa 2012. In the present study, spring was defined as from March to May, summer as from June to November, Fall as from September to November and winter as from December to February. Age, sex, disease duration, number of tender joints, swollen joints, pain VAS, PtGA, PhGA, ESR, CRP, stage, class and mHAQ were also included as explanatory variables.

Results: Univariable analysis using NinJa 2012 database revealed that PtGA, pain VAS and disease activity score (DAS)-28 were lowest during the fall months with statistical significance, which was reproducible in NinJa 2011 database analysis. On the other hand, multivariate analysis revealed that pain VAS, mHAQ and the number of swollen joints were the main determinants of PtGA, and seasonal variation was not identified as a statistically significant factor.

Conclusion: We have clearly demonstrated that PtGA was lowest in fall. Seasonal changes can thus affect RA, although to a lesser degree than pain and activity of daily living, which should be taken into account when examining RA patients to better understand their symptoms.

Keywords: Rheumatoid arthritis, Seasonal effect