# Impact of early diagnosis on functional preservation in patients with rheumatoid arthritis: the early bird catches the worm

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Rheumatoid arthritis (RA) is a chronic inflammatory disease that causes severe joint pain, stiffness, and irreversible damage, as well as physical, social, and psychological functional impairment. These characteristics of RA result in decreased quality of life (QOL) and premature mortality [1]. Previous studies have demonstrated that early diagnosis and administration of disease-modifying anti-rheumatic drugs (DMARDs, synthetic or biologic) lead to less joint damage and better physical function. Therefore, over the past 20 years, the paradigm of RA diagnosis and treatment has changed to prevent radiological progression and functional impairment [2-4].

Keeping pace with this paradigm shift, the purpose of RA treatment has changed to improve health-related function as well as to prevent joint destruction [5]. The two different aspects of health-related function are general health condition and RA-specific health condition [6]. The Health Assessment Questionnaire-Disability Index (HAQ-DI) has been used to investigate RA-specific health function, but it does not evaluate social or psychological aspects, such as anxiety and depression, which affect QOL. It contains 20 questions, with scores ranging from 0 to 3. A score of zero indicates no functional disability [7].

Several studies have evaluated the effect of early diagnosis on functional outcome in patients with RA [4,8-10]. Nell et al. [4] confirmed that patients with very early RA (median disease duration, 3 months) showed greater functional improvement after 3 months. Gremese et al. [10] also demonstrated that patients with symptom duration of ≤ 3 months achieved an HAQ-DI score < 0.5 after 1 year compared with patients with symptom duration > 3 months. However, no study has been conducted in Korean patients with RA.

In the current issue of the *Korean Journal of Internal Medicine*, Kim et al. [11] reported a cross-sectional study examining the effect of early diagnosis and treatment on functional status in patients with RA of various disease durations. They enrolled 4,540 patients with RA and divided them into early diagnosis (lag time between symptom onset and diagnosis < 12 months) and delayed diagnosis (lag time > 12 months) groups to evaluate the impact of early diagnosis on the development of functional disability using the HAQ-DI. Throughout the study, patients in the early diagnosis group had low-

er HAQ-DI scores than those in the delayed diagnosis group (0.64 ± 0.63 vs. 0.70 ± 0.66, $p$ < 0.01). Early diagnosis (odds ratio [OR], 1.19; 95% confidence interval [CI], 1.01 to 1.40), male sex (OR, 2.88; 95% CI, 2.29 to 3.63), disease duration < 5 years (OR, 1.42; 95% CI, 1.16 to 1.75), higher education level (OR, 1.70; 95% CI, 1.39 to 2.07), absence of bone erosion at diagnosis (OR, 1.42; 95% CI, 1.20 to 1.68), age (OR, 0.98; 95% CI, 0.97 to 0.99), and disease activity score 28-erythrocyte sedimentation rate (OR, 0.45; 95% CI, 0.97 to 0.99) were independently associated with lower functional disability. In addition, they investigated the influence of early diagnosis on functional disability according to disease duration and revealed that early diagnosis was associated with no functional disability in patients with disease duration < 5 years (OR, 1.37; 95% CI, 1.09 to 1.72), but not in patients with a longer disease duration (5 to 10 years; OR, 1.07; 95% CI, 0.75 to 1.52). These findings confirm that an early diagnosis within 1 year is associated with a lower risk of functional disability for at least 5 years.

The results of the study by Kim et al. [11] are consistent with those of previous studies [4,8-10]. Furthermore, this study is meaningful because it is the first to include Korean patients with RA to confirm the effect of early diagnosis on functional outcome using a large, nationwide, observational cohort. Other advantages of this study are its relatively large sample size, population-based design, and inclusion of extensive demographic information. These advantages allow for adjustment of several known risk factors, such as age, sex, education and bone erosion, and for direct analysis of the effect of early diagnosis on functional outcome based on disease duration. However, because this study was cross-sectional, recall bias cannot be excluded. Another limitation is that the authors did not re-evaluate the HAQ-DI score; therefore, the effect of synthetic or biologic DMARDs on improvement or deterioration of functional outcome could not be analyzed.

In conclusion, considering these previous studies, early diagnosis of RA is helpful in preventing major radiographic progression and delaying development of a functional disability, particularly in patients with a shorter disease duration. A future prospective cohort study should be conducted to confirm the impact of early diagnosis on functional outcome in patients with RA.

## Conflict of interest

No potential conflict of interest relevant to this article was reported.

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