Baseline low Modified Health Assessment Questionnaire (MHAQ) predicts the state of remission estimated by Clinical Disease Activity Index and MHAQ at 1 year in tocilizumab-treated rheumatoid arthritis patients

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The objectives of this study were to explore the baseline variables that predict the state of remission at 1 year as estimated by the Clinical Disease Activity Index (CDAI) and the Modified Health Assessment Questionnaire (MHAQ) in tocilizumab (TCZ)-treated rheumatoid arthritis (RA) patients. RA patients who received 8 mg/kg of TCZ every 4 weeks were consecutively enrolled in this study from April 2008 to March 2011 at the nine rheumatology centres of Nagasaki Prefecture, Japan. A total of 110 RA patients who had been observed for 1 year from the initial TCZ infusion were examined in this retrospective observational investigation. The last observation carried forward (LOCF) method by intent-to-treat (ITT) analysis was used for the evaluation of the patients’ CDAI and MHAQ scores. The median age, disease duration, C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), CDAI and MHAQ at entry were 61.3 years old, 9.7 years, 1.6 mg/dL, 48 mm/hr, 23.9, and 0.8, respectively. Anti-cyclic citrullinated peptide antibodies (ACPA) were positive in 90.2% of the patients and rheumatoid factor (RF) was positive in 88.6%. The retention rate of TCZ at 1 year was 85.5%. The median CDAI score decreased significantly from 25.2 at baseline to 10.5 at 1 year (p<0.0001 vs. baseline), and CDAI remission (CDAI ≤20) was achieved in 38.0% of the patients at 1 year. The median MHAQ score decreased significantly from 0.9 at baseline to 0.6 at 1 year (p<0.01 vs. baseline), and MHAQ remission (MHAQ score ≤0.3) was achieved in 38.0% of the patients at 1 year. We attempted to identify the baseline variables that predict the state of CDAI remission and MHAQ remission at 1 year through a multiple regression analysis, and we selected the most appropriate model on the basis of Akaike’s information criteria. NPAR1WAY was used for the calculations. The baseline variables of age, gender, disease duration, Steinblocker classification, concomitant use of methotrexate or glucocorticoids, previous TNF inhibitors use, tender joint counts, swollen joint counts, patient’s global assessment, evaluator’s global assessment, positiveness of ACPA, positiveness of RF, matrix metalloproteinase-3 concentrations, CRP concentrations, ESR, Disease Activity Score (DAS) 28-ESR, CDAI, Simplified Disease Activity Index (SDAI) and MHAQ were selected for the evaluation. As shown in Table 1, the logistic regression analysis revealed that shorter disease duration and low MHAQ were predictive of CDAI remission at 1 year. In addition, low MHAQ score was predictive of MHAQ remission at 1 year. The MHAQ was developed as a short version of the HAQ and has been used to assess function in patients with RA (1). Takeuchi et al. revealed that low HAQ at baseline is a predictive variable for three types of remission (DAS28, radiographic and HAQ) at 1 year of TCZ treatment (2). In other words, the CDAI may be a more accurate disease activity score than the DAS28 in RA patients treated with TCZ (3-5), since TCZ directly inhibits the increases of CRP and ESR whereas the CDAI does not contain these acute-phase reactants (6). Accordingly, the present study’s results showed that low MHAQ at baseline is the only variable to predict the remission state of CDAI and MHAQ at 1 year of TCZ-treatment in RA patients. In addition, shorter disease duration is predictive of CDAI remission at 1 year. In conclusion, we have identified baseline variables in RA patients treated by TCZ.

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