This finding, and its cost-effectiveness, should be validated in a clinical study.

REFERENCES

- [1] Kievit W., et al.. *Ann Rheum Dis* 2016; 75:1939-1944
- [2] Vodencarevic A., et al.. *DATA* 2018; 187-192

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SAT0117 THE IMPACT OF DIFFERENT CRITERIA SETS ON EARLY REMISSION AND IDENTIFYING ITS PREDICTORS IN RHEUMATOID ARTHRITIS: RESULTS FROM AN OBSERVATIONAL COHORT (2009–2018)

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Background: Currently, with increased awareness of early diagnosis and intervention and the identified association of early remission with a better clinical outcome in patients with rheumatoid arthritis (RA), shorter time to remission appears to be a more attractive goal. There are several studies reported the prevalence of early remission, no study so far has demonstrated the issue in Chinese population. Moreover, further investigative studies need to be performed due to limited and conflicting predictors of early remission in previous studies.

Objectives: To assess rates of early remission and investigate the concordance across different remission definitions, and to identify predictors of early remission in Chinese patients with RA.

Methods: For this study, clinical records were retrospectively reviewed for RA patients at rheumatologic clinic in Peking University First Hospital from 2009 to 2018. Disease activity and remission were determined according to DAS28-ESR, CDAI, SDAI, and Boolean criteria. Early remission was defined as time to remission ≤ 6 months. A secondary definition evaluated early remission as ≤ 3 months. Logistic-regression analyses were performed to identify determinants of early remission.

Results: 869 consecutive patients contributing 8,640 clinic visits were studied. Early remission rates were respectively 42.0% (DAS28-ESR), 25.0% (CDAI), 29.4% (SDAI), and 26.1% (Boolean). Notably, patients achieving remission within 6 months more frequently attained sustained remission by contrast to those not achieving early remission (68.7-75.1% vs. 31.2-33.1%, $P < 0.0001$). Further logistic-regression analyses revealed male (OR=1.42-1.74, $p < 0.05$), early RA (OR=1.64-2.22, $p < 0.05$), as well as initial hydroxychloroquine treatment (OR=1.41-1.81, $p < 0.05$) were independently associated higher probability of early remission, as demonstrated by nearly all definitions, while a higher baseline disease activity (DAS28-ESR, CDAI, and SDAI) lowered the possibility of early remission in corresponding remission indices. However, the significant associations of treatment-naïve, serological features with early remission were not confirmed.

Conclusion: Early remission was strongly associated with sustained remission, however infrequently achievable in real-life practice. Male, early RA, a low baseline disease activity, and initial hydroxychloroquine treatment were stable independent predictors of early remission.

Disclosure of Interests: None declared

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SAT0118 PRETREATMENT PREDICTION OF INDIVIDUAL OUTCOME OF RHEUMATOID ARTHRITIS PATIENTS TO INFliximab THERAPY USING SERUM BIOMARKERS AND CLINICAL DATA

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Background: Infliximab (IFX), is a most effective b-DMARD, and results in a 60% remission rate on average in rheumatoid arthritis (RA) patients. The remaining 40% of patients undergo other biologics treatments that follow a 'treat-to-target method' until they achieve remission. Predicting in advance that a patient cannot achieve clinical remission with IFX, would allow doctors to start such patients on treat-to-target treatments sooner. Unfortunately, no reliable method has yet been found to predict patient-response.

Objectives: We tried to establish a prediction method using the serum of individual patient with RA related biomarkers present in varying amounts before they underwent IFX.

Methods: This study uses an observational retrospective study with 85 patients. 22 clinical data were used as explanation variables, such as, disease duration, combination of c-DMARDs, DAS 28-ESR, and day 0 laboratory data. 84 biomarkers in patients' pretreatment serum were measured using Multi-Plex Human Cytokine Chemokine beads array. DAS-28-ESR after 24 weeks was used as an objective variable. Patients administered IFX with regular method were divided into two groups: complete remission (DAS 28-ESR < 2.6) and non-remission (DAS 28-ESR ≥ 2.6) at 24 weeks. The log-transformed value of all parameters were used for the statistical analysis. We used the least absolute shrinkage and selection operator (Lasso) approach to select combination markers that were most predictive of remission. In the process of multi-marker prognostic model building, to avoid over fitting, leave-one-out cross validation (LOOCV) was used to evaluate the performance of the multi-marker model.

The receiver operating characteristic (ROC) analysis was used to evaluate the ability of the models to predict the 24-week outcome of patients. The area under the ROC curve is the product of the cross validation procedure.

Results: We selected a combination from 104 markers. 3 to 5 combinations were most predictive of remission with 1.405 Cohen's d and at 0.85 AUC, 0.826 PPV, 0.882 NPV, and 0.689 ACC. On the contrary, using 22 clinical parameters, AUC, PPV, NPV and ACC were 0.726, 0.713, 0.649 and 0.673, respectively.

Conclusion: Using the pre-treatment serum, we were able to predict with high accuracy patients who would achieve remission. Our method is stable and economical; therefore, it may be applicable as a way of identifying individual patients who are resistant to IFX therapy, so as to avoid treating them with IFX in the first place. The next step is to confirm these results in larger scale retrospective and prospective studies. The first highly accurate method identified for predicting remission and non-remission in individual RA patients who are targeted for IFX treatment.

REFERENCE

- [1] Uno K, Yoshizaki K, et al. Pretreatment Prediction of Individual Rheumatoid Arthritis Patients' Response to Anti-Cytokine Therapy Using Serum Cytokine/Chemokine/Soluble Receptor Biomarkers. *PLoS One*. 2015 Jul 15;10(7): e0132055.

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