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

REFERENCES

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Background: Infliximab (IFX), is an 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-respon- se.

OBJECTIVES: 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 mea- sured using Multi-Plex Human Cytokine Chemokine beads array (DAS 28-ESR after 24 weeks was used as an objective variable. Patients adminis- tered 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 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 combina- tions were most predictive of remission with 1.405 Cohen’s d and 0.85 AUC, 0.826 PPV, 0.882 NPV, and 0.889 ACC. On the contrary, using 22 clinical parameters, AUC, PPV, NPV and ACC were 0.726, 0.713, 0.689 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 stab- ile and economical; therefore, it may be applicable as a way of identify- ing 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

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