affected by early RA, while Etanercept and Abatacept are the biologics with the highest probability of inducing ACR70.

REFERENCE:

- [1] Migliore A, et al. The Challenge of Treating Early-Stage Rheumatoid Arthritis: The Contribution of Mixed Treatment Comparison to Choosing Appropriate Biologic Agents. *BioDrugs* 2016;30(2):105–115.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.4759

FRI0146

CORRELATION BETWEEN THE RHEUMATOID FACTOR POSITIVITY AND THE HIGHER DISCONTINUATION RATE OF BIOLOGICAL THERAPY IN RHEUMATOID ARTHRITIS: A FINE-GREY PROPORTIONAL HAZARD REGRESSION ANALYSIS

Y. Ogawa¹, N. Takahashi², T. Kojima², N. Ishiguro². ¹Nakatsugawa Municipal General Hospital, Nakatsugawa; ²Nagoya University Graduate School of Medicine, Nagoya, Japan

Background: As quantifying the occurrence of outcome over time holds vital importance in clinical medicine, the presence of competing risks must be considered when assessing the impact of prognostic factors on the incidence of an outcome over time. A competing risk is defined as an event that precludes the occurrence of an event of interest. For example, event arising from adverse effect causes is a competing risk when evaluating the effect of risk factors on the incidence of discontinuation of biological therapy because of inadequate response. The presence of biased estimates of the effect of covariates on the incidence in the presence of competing risks is attributed to the naïve use of the conventional Cox proportional hazards model that censors the competing event. Fine and Grey developed the subdistribution hazard model that facilitates modelling the effects of covariates on the cumulative incidence function in the presence of competing risks.

Objectives: The discontinuation of biological therapy in rheumatoid arthritis (RA) is attributed to several reasons, including inadequate response, adverse effect, remission, and changing hospital. In particular, inadequate response constitutes a principal and compelling reason. This study aims to investigate the correlation between covariates, including the rheumatoid factor (RF) positivity and the discontinuation of biological therapy due to inadequate response in bio-naïve patients with RA using the Fine–Grey proportional hazard regression for competing events.

Methods: In this study, we enrolled patients in the Tsurumi Biologic Communication Registry that comprises Nagoya University and 15 affiliated institutions in Japan. We assessed the correlation between individual characteristic components and patient outcomes using the Fine–Grey proportional hazard regression for competing events. Apparently, time-based models estimate the effects of various characteristics (e.g., RF positivity, sex, and age) on time to develop events of interest, including the discontinuation owing to inadequate response. The Fine–Grey proportional hazard regression considered competing events, implying that this model generated separate hazard ratios for each competing event. All analyses were conducted in EZR version 1.36.

Results: A higher crude discontinuation rate was observed due to inadequate response in RF-positive patients than that in RF-negative patients using the cumulative incidence function of competing events and Grey test (figure 1). After adjusting for the baseline characteristics, including age, sex, stage, disease at the baseline, methotrexate use, prednisolone use, and tumour necrosis factor inhibitor (TNFi) or non-TNFi (HR, 1.57; 95% CI: 1.01–2.43; $p < 0.05$; table 1), the difference was significant in the Fine–Grey proportional hazard regression analysis.

	Hazard ratio	Lower 95% CI	Upper 95% CI	p.value
RF positivity	1.57	1.01	2.43	<0.05
Sex	0.91	0.61	1.36	0.67
Age	0.99	0.98	1.01	0.12
Das28esr at baseline	1.31	1.15	1.48	<0.05
non-TNFi	0.53	0.31	0.91	<0.05
MTX use	1.64	1.01	2.67	<0.05
PSL use	1.16	0.82	1.64	0.38
Stage	0.99	0.98	1.01	0.57

Conclusions: Using the Fine–Grey proportional hazard regression for competing events, this study demonstrated a correlation between the RF positivity and inadequate response to biological therapy on bio-naïve patients with RA.

Disclosure of Interest: None declared

DOI: 10.1136/annrheumdis-2018-eular.4046

FRI0147

ANALYSIS OF RADIOGRAPHIC JOINT DESTRUCTION IN THE PATIENTS WITH RHEUMATOID ARTHRITIS WHO HAVE WITHDRAWN, SPACED AND CONTINUED BIOLOGICS AFTER ACHIEVING SUSTAINED REMISSION FROM LOCAL BIOLOGICS REGISTRY

Y. Takakubo, J. Nagai, H. Oki, Y. Naganuma, S. Yang, J. Ito, Y. Suzuki, K. Sasaki, M. Takagi. Department of Orthopaedic Surgery, Yamagata University Faculty of Medicine, Yamagata, Japan

Background: Increasing of remission reached by biologics agents in early and established RA patients^{1, 2}. Data on withdrawn, spacing or reducing of biologics (BIO) medication after sustained remission are limited^{3, 4}. After withdrawn, spacing or reducing, it is less known to be influenced the radiographic destruction of the joints.

Objectives: To retrospectively analyse the joint destruction using modified Total Sharp Score (mTSS) in RA patients in sustained remission, either withdrawing, spacing and continuing BIO.

Methods: Local prefectural (ZAO) registry which is open-labelled BIO cohort study has registered 356 RA patients. RA Patients were enrolled into this study if they maintained in DAS remission (DAS28-ESR<2.6) more than one year after starting BIO. ΔmTSS1 was estimated between starting BIO and withdrawn or spacing or reaching remission in each group, ΔmTSS2 between the beginning of withdrawn or spacing, or reaching remission in continuing group and latest follow-up or flare-up.

Results: 40 RA patients (32 female) using BIO was fulfilled in the criteria of this study in ZAO registry. Of 40 RA Patients, 10 has withdrawn BIO, 15 has spaced and 15 has continued it after maintain DAS remission more than one year. Mean age was 43, 55, 54 year-old, mean RA affiliation 4.6, 15.3, 9.1 years before BIO and mean duration of remission 6.2, 7.6, 7 years, mean dosage of MTX and PSL was 7.7, 6, 5 mg/week and 1.1, 3, 4 mg/day, respectively. ΔmTSS1 and ΔmTSS2 was +2.4 and +4.5 in withdrawn group, +3.6 and +0.9 in spacing group, +0.2 and -1.4 in continuing group, respectively (figure 1, $p < 0.05$). Five cases in withdrawing group had resumed BIO because of flare-up of their disease activity.

Abstract FRI0147 – Figure 1. Radiographic destruction of joint in each withdrawn, spacing, continuing groups