improved well-being scores, normalised median ESR- and CRP-levels. Inactive disease was reached by 3 patients at 1 year.

Conclusions: MSC infusions in refractory JIA patients are safe, although in sJIA stopping the ‘failing’ biologic treatment carries a risk of a MAS flare since the drug might still suppress the systemic features. Furthermore, intravenous administration of MSC might be efficacious even in multiple biological-failing JIA patients with damage.

Disclosure of Interest: None declared


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Joint EULAR – EFIS session: I’ve got a B in my bonnet

**OP0204**

DOMINANT B CELL RECEPTOR CLONES IN PERIPHERAL BLOOD PREDICT ONSET OF ARTHRITIS – A VALIDATION COHORT


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**Background:** A phase characterised by the presence of specific autoantibodies and arthralgia is the hallmark of clinically evident synovial inflammation often precedes the onset of rheumatoid arthritis (RA). However, only a subset of these RA-risk individuals will develop active disease in the short term. Recent findings show that dominant B cell receptor (BCR) clones in peripheral blood can accurately predict imminent onset of arthritis in these RA-risk individuals.

**Objectives:** To validate the predictive role of BCR clones in peripheral blood in RA-risk individuals in a larger cohort.

**Methods:** The BCR repertoire in peripheral blood was analysed using next-generation BCR sequencing in a prospective cohort study of 129 RA-risk individuals who developed arthritis within 3 years, compared to RA-risk individuals who did not. A ROC curve was calculated using the area under the curve (AUC) as a measure of discrimination.

**Results:** We observed that the number of dominant BCR clones was increased in RA-risk individuals who developed arthritis within 3 years, compared to RA-risk individuals who did not. The optimal cut-off for this test was at >5 dominant BCR clones in the peripheral blood (figure 1A), dividing the cohort in 45 BCR-positive individuals and 84 BCR-negative individuals. None of the BCR-clone negative individuals developed arthritis within 36 months. Within the total follow-up of 104 months only 8% of the BCR-clone negative individuals developed arthritis compared to 76% of the BCR-clone positive individuals, resulting in a relative risk of 9.1 (95% CI: 4.4 to 18.8; p<0.0001). To test whether a higher number of dominant BCR clones correlates with higher risk of arthritis BCR-clone positive individuals were subdivided into three groups: 5-9 HECs (n=27), 10–14 HECs (n=13) and >15 HECs (n=5). The Kaplan-Meier curve for all groups is shown in figure 1B (logrank test between BCR-clone negative group and positive subgroups: p<0.0001). Having 10 or more HECs corresponded with a positive predictive value of 83% and a negative predictive value of 87% within 3 years. The BCR clonality test clearly added to existing indices of RA risk in RA-risk individuals (data not shown).

**Conclusions:** In the external validation cohort we could replicate the fact that dominant BCR clones in peripheral blood predict imminent onset of clinical symptoms of the rheumatoid arthritis patients with high accuracy. Furthermore, a highly significant association correlating a higher number of dominant BCR clones with higher risk was shown. We hope these results will support evaluation of early interventions that prevent onset of arthritis.

**REFERENCES:**


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