The role of MEFV gene sequencing on the heterogeneity of juvenile psoriatic arthritis


Background: Genetically susceptibility was essential in pathogenesis of systemic juvenile idiopathic arthritis (SJIA). Objectives: To find out whether MEFV mutations contributed to the occurrence of SJIA and study the association of MEFV mutations with systemic juvenile idiopathic arthritis (SJIA) patients’ disease severity. Methods: SJIA children diagnosed based on the ILAR criteria and followed up for at least 6 months between January 2011 and July 2018 were enrolled. Meta-analysis was performed to evaluate the contribution of MEFV mutations to SJIA susceptibility. All included children were divided into three groups by presence and number of MEFV mutations, namely, those without MEFV mutation, the one mutation group, and those with more than one mutation. Demographic and clinical characteristics, as well as disease severity were compared among these groups. Disease severity was evaluated with the following three items, i.e., average duration of use of each drug, the proportion of disease activity duration and relative relapse rate. Kaplan-Meier curves and log rank test were used to estimate the probability of the first relapse. Results: Eighty-nine patients met the ILAR criteria, among which 55 patients were eligible for further analysis. The MEFV mutations of our subjects primarily existed in exons 2 and 3. No significant difference were found in frequency of each mutation between SJIA children and healthy controls. Meta-analysis demonstrated that M694V was a risk factor for SJIA (pooled OR: 7.13, 95% CI: 3.01-16.89). Comparing with the one mutation group, biologics were used more frequently in those without or with more than one mutation in MEFV (p<0.017). Moreover, the proportion of disease activity duration was significantly lower in the one mutation group than the other two groups (p=0.028 and 0.002 respectively). Conclusion: The mutation M694V in MEFV contributed to occurrence of SJIA. SJIA patients carrying one heterozygous mutation in MEFV tend to be less severe, which might be attributed to E148Q.

Disclosure of Interests: None declared

The heterogeneous of juvenile psoriatic arthritis: evidence from a large multinational cohort


Background: Despite being considered as a distinct diagnostic category in the current ILAR classification criteria, juvenile Psoriatic Arthritis (JPsA) is known to be a heterogeneous clinical entity, with growing evidence suggesting at least two age-based distinct subgroups(1). Objectives: To identify and characterize subgroups of patients classified as JPsA according to the ILAR criteria and their possible differences in disease outcomes. Methods: Cross-sectional data from patients enrolled in The EPidemiology, treatment and Outcome of Childhood Arthritis (EPOCA) study and classified as JPsA according to ILAR criteria (n=308) were analyzed. Latent class analysis (LCA) was used to identify subgroups of subjects with similar profiles ILAR criteria for JPsA (presence at onset of psoriasis, dactylitis, nail changes, first-degree relative with psoriasis) and age of arthritis onset. Multinomial logistic regression (three-step method) was performed to explore differences across the obtained classes in clinical-laboratorial features at onset and outcomes measures collected at visit, namely JADAS scores, VAS-measured Pain, Overall Well-Being (PGA) Pediatric Rheumatology Quality of Life Scale (PROL). In patients with disease duration more than 2 years (n=233), the relation with Articular and Extraarticular Juvenile Arthritis Damage Index (JADI) was also assessed.

Results: LCA revealed 5 classes: 1) late-onset patients with psoriasis, characterized by higher frequency of axial involvement at visit (n = 121); 2) late-onset patients with more than one mutation (n = 66); 3) young females with dactylitis at onset and family history of psoriasis, more likely to present with symmetric joint involvement (n = 62); 4) subjects with nail changes and family history of psoriasis (n=34); 5) group exhibiting dactylitis and nail changes at onset, mostly males, with higher rates of HLA-B27 positivity, small joint involvement and enthesitis at visit (n = 25). Class 1 is associated with higher scores of JADAS10, pain, PGA and JQ; these group also shows higher JADI-A than Class 3. Extraarticular damage is worst for Class 2 subjects. Conclusion: The data driven clustering approach revealed several subgroups, confirming the heterogeneity of JPSA in a multinational cohort. Later-onset subjects with psoriasis have more aggressive disease, being clearly distinct from early-onset ANA-positive patients with psoriasis. The results suggest the need to revise the current classification in order to identify groups that may benefit from different therapeutic choices.

REFERENCES

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