Background Concomitant presence of two autoimmune diseases, such as rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE) is known as Rhupus. Despite, polioautoimmunity is not uncommon described in patients with systemic autoimmune diseases, only a small series of patients have been described so far with Rhupus. Our purpose was to analyze clinical and serological characteristics of patients with Rhupus and compare them with a cohort of patients with SLE.

Methods In this cross-sectional study, we included cases of Rhupus (RA-ACR/EULAR 2010 plus SLE-ACR 1987 criteria) from different Rheumatology Departments at Catalonia, Spain. In addition, we included patients with diagnosis of SLE in a 2:1 ratio matched by sex and race. All information was recorded following an established protocol.

Results A total of 57 patients were included, 19 cases with Rhupus and 38 cases of SLE alone as controls. 93% of patients were female, Caucasian represented 71.4%, Mestizo 17.9% and 5.4% were Asian. Mean age was 48.6±13.5 years and mean disease duration was 11.48±9.1 years. Main clinical characteristics were cutaneous involvement (75.0%), hemato logical (66.0%), serositis (19.3%), renal disease (17.9%) and secondary Sjögren syndrome (28%) among others. Clinical and serological characteristics according groups are shown in table 1.

Conclusions We found some clinical and serological differences among patients with Rhupus and SLE alone. As expected, articular domains and titers of RF and ACPAs were higher in Rhupus and they are more commonly treated with methotrexate and rituximab. By other hand, leukopenia, oral ulcers, anti-Ro antibodies and higher SLEDAI score were more common among SLE patients. Whether Rhupus patients represent a different condition requires further analysis in bigger cohorts.
The relationships between continuous covariates (cumulative PNL, number of escalations, number of de-escalations, time to first escalation, number of mild-to-moderate flares, number of severe flares and change in damage index) and cluster were examined using analysis of variance (ANOVA) and Tukeys HSD.

Results A total of 210 HDAS periods (104 patients) were identified. Of the HDAS periods, patients were classified as treatment naïve (10%), HCQ inadequate response (20%), IS inadequate response (68%), and combination IS inadequate response (2%). The most commonly used IS was mycophenolate (23% of all HDAS periods). The trajectories were categorized into 3 final clusters: Cluster A (42/210) had more escalations than Cluster B (132/210) and Cluster C (36/210), see figure 1. There was no difference between clusters in the duration of time spent in HDAS, but a trend for higher cumulative PNL in Cluster A and they had significantly more and earlier escalations than Cluster B and C. Damage accrual appeared to be highest in Cluster C (the de-escalators) although not statistically significant. There was no difference between the distribution of the baseline treatment groups in each cluster.

Conclusions Treatment trajectories can be described using clustering that examines treatment escalations and de-escalations. This pilot study showed that treatment trajectories appear to have an effect on clinical outcomes. Further studies are planned to explore the relationship of patient characteristics or physician treatment decisions have on these clusters.

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