

ABSTRACT IN LOCAL LANGUAGE:

Systemic Lupus Erythematosus (SLE) is an autoimmune disease responsible for a great burden of morbidity and early death, even in the those who receive suitable medical care. Involvement of the kidneys is amongst the most serious form of the disease. Whereas the triggers for clinical disease flares remain elusive, we have postulated that shifts in the microbial communities that inhabit the intestines of affected patients may play a role. We therefore performed the first longitudinal (i.e., over time) analyses of the relationships between the composition of gut microbiota communities and disease activity in SLE patients. In contrast to healthy individuals in which gut communities were remarkably resilient, reflecting a dynamic equilibrium, in SLE patients there were great shifts over time, indicating inherent community composition instability. Notably, almost half of the patients with kidney involvement had episodes of expansions of a specific bacterial species, *Ruminococcus gnavus*, within their intestines, with an associated anti-bacterial immune response, that was associated with serious disease flares. These findings provide evidence that a specific shift within gut communities, which is clandestine and without direct clinical signs and symptoms, represents a previously undetected driver of lupus disease.