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"Identifying Therapeutic Targets in Estrogen-Mediated B Cell Dysregulation in SLE: A Scoping Review"

Background: Systemic lupus erythematosus (SLE) is an autoimmune disease affecting over 3.41 million individuals worldwide, making it an important focus of clinical research. SLE has a pronounced sex bias, with a female-to-male ratio of 9:1. Although the precise cause of this bias remains unclear, sex hormones, in particular estrogen, are thought to play a significant role. SLE is characterized by the presence of anti-dsDNA and other anti-self antibodies, highlighting the importance of B cell dysregulation in its pathogenesis. Estrogens have been shown to dysregulate B cell development, activation, and differentiation through several pathways, further implicating them in SLE pathogenesis.

SLE is a serious, chronic condition with no cure and a historic reliance on hydroxychloroquine, corticosteroids, and immunosuppressants for its management. However, recent therapies have successfully targeted B cell depletion using monoclonal antibodies and CAR-T cell therapies, and proved to significantly reduce mortality and morbidity in SLE patients. Given the role of estrogen in B cell dysregulation, considerable research has focused on identifying the cellular pathways involved. Thus, a better understanding of the effect of estrogen on B cells has the potential to reveal new therapeutic targets for SLE.

Objective: To write a scoping review that will identify and organize knowledge gaps regarding, potential underlying mechanisms of, and therapeutic targets in estrogen-mediated B cell dysregulation.

Materials and Methods: After defining the research aim, a scoping review was selected as the most appropriate approach to identify gaps in knowledge about therapeutic targets in estrogen-mediated B cell dysregulation. A librarian was consulted to develop search terms and assist with data extraction from PubMed, Scopus, Embase, Cochrane, and Google Scholar. Initially abstracts were screened for relevance using inclusion and exclusion criteria. The relevant articles will be uploaded to Covidence for organization and review using a scoping review protocol. These papers will then be analyzed to identify and categorize any existing gaps in knowledge regarding therapeutic targets in estrogen-mediated B cell dysregulation in SLE.