MAR Clinical Case Reports (2024) 5:6

Mini Review Article

Recent Advances in Management of Systemic Lupus Erythematosus (SLE).A Mini Review

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Received: 19 August 2024

Published: 01 Sept 2024

Abstract

Systemic lupus erythematosus (SLE) is a challenging and an undecipherable example of autoimmunity, it is still under research. It is an autoimmune ailment involving almost every system in the body. Although immunosuppressive and other options of treatments have been tried forlong time but still clinicins have seen intermittent disease flares and remissions. We searched literature and summarized findings in such studies regarding the subject matter over the last few years.

Key Words:- SLE, autoimmune disease , treatment ,guidelines.

Introduction

Systemic lupus erythematosus (SLE) is an undecipherable example of autoimmunity, it is still under research. It is a kind of multisystem autoimmune ailment involving almost every system in the body. Although immunosuppressive agents have been utilized but very challenging at the same time.Many options of treatments still have intermittent disease flares and remissions (1,2,3).

There are numerous challenges owing to the mixture of clinical and biological heterogeneity in SLE behavious that has led to limited breakthroughs regarding the treatment options of systemic lupus erythematosus (5,6,7,8). In this review ,recent advances in research related to SLE have been summarized.

Methods

We searched PubMed, and Medline database publications and results of clinical trials presented at major international rheumatology conferences during the last decade using: SLE, autoimmune disease , treatment ,guidelines. The publications included were special communications, reviews, books, and research presentations and studies regarding the subject matter over the last few years.

Discussion

The incidence and prevalence of systemic lupus erythematosus has been highly variable among different regions in the world.These variations are because of environmental exposures,genetics factors and

variability of the presenations of systemic lupus erythematosus (1). The female gender, specific populations such as African Americans, Amerindians, and Asians are at greater risk of SLE (2). Recently increasing trend in the prevalence of systemic lupus erythematosus has been witnessed in different regions including USA, Europe and Asia (3,4,5,6).

Different sets of classification criteria for systemic lupus erythematosus have been devised over time such as one used American College of Rheumatology criteria, others include the systemic lupus international collaborating clinics (SLICC) (9). Recently, another classification has been devised by collaboration between the American College of Rheumatology and the European Alliance of Associations for Rheumatology (EULAR) (10).

Although genetics research has been done in connection to SLE but despite progress in researchers ' comprehension of the underlying genetic risk factors for systemic lupus erythematosus, many of questions still remain un answered . Approximately near 100 gene loci have been implicated as risk factors in systemic lupus erythematosus,but there are still many gaps in our understanding of the pathogenesis at genetic level (11). In males, patients having an extra X chromosome, such as those with Klinefelter syndrome (47,XXY) and trisomy X syndrome (47,XXX), have relatively higher prevalence of systemic lupus erythematosus (12,13).

Sex hormones have been implicated in systemic lupus erythematosus as they affect more female than males, increased flares in timesof elevated estrogen levels in pregnancy, and higher chances of being affected by systemic lupus erythematosus in those postmenopausal women who get estrogen administration (8,14).

Autoantibodies are a essential hallmark of systemic lupus erythematosus, and important for the initial diagnosis as well as monitoring of disease activity. The antinuclear antibody test is positive in most patients with systemic lupus erythematosus (15,16,17).

There is high variance in clinical symptoms. Constitutional symptoms include fever, brain clouding, ,fatigue which negatively impact patients' quality of life suffering from systemic lupus erythematosus (18,19). Inflammatory arthropathy,mucocutaneous disease affects many of these patients while glomerulonephritis and hematological disease, less common. Neuropsychiatric lupus and cognitive dysfunction are other less commonly encountered issues in SLE patients (20,21).

Antimalarials such as hydroxychloroquine is also used unless it is contraindicated. Then glucocorticoids are pivotal in managing acute as well as chronic forms of systemic lupus erythematosus. Glucocorticoids use lead to Cushingoid metabolic adverse effects. Immunosuppressants such as mycophenolate mofetil , mycophenolate sodium, azathioprine, methotrexate are also used in combination therapy regimens along with glucocorticoids and antimalarials. The optimal time duration for using immunosuppressants option in systemic lupus erythematosus is imperfectly evidenced. Treatment guidelines recommend treatment of histological class III or IV lupus nephritis with mycophenolate mofetil or cyclophosphamide for induction, and mycophenolate mofetil for maintenance treatment. The optimal duration of maintenance treatment is still not known but approximately it should be around four years (22,23).

Anti-CD20 B cell depleting chimeric monoclonal antibody, rituximab is also utilisedin management of SLE. Another novel calcineurin inhibitor voclosporin has been found to be effective compared with placebo in a phase 3 study of 357 patients with lupus nephritis (24). Tyrosine kinase 2 (TYK2) a member of family of intracellular signalling molecules. Various inhibitors of TYK2 have now been studied in human disease, and one of these inhibitors, deucravacitinib has shown preliminary safety profile Two other inhibitors of TYK2, brepocitinib and ropsacitinib, are also in earlier stages of clinical trials (25). Tolerogenic dendritic cells (tolDCs) are pivotal factors in the initiation and maintenance of immune tolerance and subsequent prevention of autoimmunity. Recent advances in treatment of autoimmune diseases including systemic lupus erythematosus (SLE) have focused on inducing specific tolerance to avoid long-term use of immunosuppressive drugs (26).

The treatment outcomes for SLE are always facing challenges. The main causes of death in patients suffering with systemic lupus erythematosus include infection secondary to immunosuppression, renal disease, and cardiovascular compications (27,28,29). The poor outcomes for patients with systemic lupus erythematosus which has been seen in many research studies underscores the fact that we still need for better options of treatments pathways for optimally controlling SLE. There are leading socities in world working on guidelineshowever we still need more application of advances in pathogenic understanding to identification and testing of therapeutic targets. We need more evidence based decision making in clinical practice. There is demand for robustness of goals gauging in trials to better guide the utility of trials results and their possible application in clinical practices.

Conclusion

Although much of work has been done regarding devising optimal treatment goals and guidelines to achieve them. But there are still questions which need answers regarding SLE management.In future quest for combination of new treatment options and measures to reduce complications of SLE would be a main challenge for researchers.

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