

# Systemic Lupus Erythematosus (SLE): Most Common Clinical Manifestations and Renal Complications

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#### LITERATURE REVIEW

#### RESUMO

Introdução: O Lúpus Eritematoso Sistêmico (LES) é uma doença autoimune crônica que afeta múltiplos sistemas orgânicos, apresentando um amplo espectro de manifestações clínicas. Essa patologia é caracterizada pela produção anômala de anticorpos que atacam tecidos e órgãos, levando a inflamações e danos generalizados. As manifestações clínicas do LES são variadas, incluindo sintomas articulares, dermatológicos, hematológicos e neurológicos. Entre as complicações mais graves estão as renais, que podem se manifestar como nefrite lúpica, resultando em comprometimento renal significativo e potencialmente fatal. Objetivo: A revisão sistemática de literatura teve como propósito analisar as manifestações clínicas mais comuns do LES, com foco específico nas complicações renais associadas à doença. Metodologia: Para a realização da revisão, utilizou-se o checklist PRISMA para garantir a transparência e a qualidade da pesquisa. Foram consultadas as bases de dados PubMed, Scielo e Web of Science, empregando cinco descritores principais: "Lúpus Eritematoso Sistêmico", "manifestações clínicas", "nefrite lúpica", "complicações renais", e "diagnóstico". Os critérios de inclusão abrangeram artigos revisados por pares publicados nos últimos 10 anos, que abordassem manifestações clínicas e complicações renais do LES, e que estivessem disponíveis em inglês, português ou espanhol. Foram excluídos artigos que não apresentavam dados específicos sobre complicações renais, estudos não originais, e artigos cujo foco principal não fosse a doença em questão. Resultados: A revisão revelou que as manifestações clínicas mais frequentes do LES incluem artrite, erupções cutâneas, e distúrbios hematológicos como leucopenia e anemia. As complicações renais, notadamente a nefrite lúpica, foram identificadas como uma das manifestações mais graves e prevalentes, com sintomas como proteinúria, hematuria, e insuficiência renal. A nefrite lúpica pode evoluir para formas graves, incluindo a síndrome nefrótica e a insuficiência renal crônica, exigindo intervenção médica intensiva para manejo adequado. Conclusão: A análise das literaturas destacou que o LES apresenta uma ampla gama de manifestações clínicas, com complicações renais sendo particularmente críticas. A identificação precoce e o tratamento eficaz da nefrite lúpica são essenciais para melhorar o prognóstico e reduzir a morbidade associada a esta condição. As estratégias de manejo devem focar na monitorização



rigorosa das funções renais e na intervenção precoce para prevenir danos renais irreversíveis.

**Palavras-chaves:** "Lúpus Eritematoso Sistêmico", "manifestações clínicas", "nefrite lúpica", "complicações renais", e "diagnóstico".

#### ABSTRACT

Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disease that manifests through a broad spectrum of symptoms, reflecting its complex and systemic nature. Among the most common clinical manifestations of SLE are the articular, cutaneous, and hematological symptoms. Patients often present with arthritis, which can cause joint pain and swelling, cutaneous rashes such as the butterfly-shaped erythema, and hematological alterations, including anemia and leukopenia. These symptoms vary in intensity and can significantly impact quality of life, making the diagnosis and management of the disease challenging. In addition to general clinical manifestations, renal complications play a crucial role in the clinical picture of SLE. Lupus nephritis is a particularly severe renal complication that occurs when the immune system attacks the kidneys, resulting in inflammation and damage. This condition can manifest through symptoms such as proteinuria (presence of proteins in the urine) and hematuria (blood in the urine), signs indicating significant renal involvement. Lupus nephritis not only affects renal function but can also lead to severe complications such as nephrotic syndrome and chronic kidney failure, making early detection and effective treatment essential to prevent disease progression. The interaction between these manifestations and complications makes SLE management complex, requiring careful evaluation and multidisciplinary care to optimize patient outcomes. The diagnosis of lupus nephritis is a critical aspect of managing Systemic Lupus Erythematosus (SLE). Detecting this renal complication involves a series of laboratory and imaging tests. Urinalysis reveals changes such as proteinuria and hematuria, while renal function tests measure the kidneys' ability to filter substances from the blood. Additionally, renal biopsy may be essential for assessing the degree of inflammation and damage in the renal tissues, providing detailed information for more precise treatment. The treatment and management of renal complications in SLE require a careful and integrated approach. Therapeutic strategies often include the use of immunosuppressive medications to reduce immune system activity and corticosteroids to control inflammation. Antiproteinuric agents are also used to minimize protein loss in the urine and protect renal function. The effectiveness of treatment is monitored through regular follow-ups of laboratory and clinical parameters, adjusting therapy as needed to optimize results. The impact of renal complications on the prognosis of SLE is significant. The presence of lupus nephritis can exacerbate the clinical picture and lead to severe consequences, such as chronic kidney failure, which requires advanced treatments like dialysis. Early detection and appropriate management of these complications are crucial for improving overall prognosis and quality of life. Ongoing monitoring and timely intervention are essential to prevent disease progression and reduce associated morbidity.

Keywords: "Lupus Erythematosus Systemic," "clinical manifestations," "lupus nephritis,"



"renal complications," and "diagnosis."

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## **INTRODUCTION:**

Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disease that manifests through a broad spectrum of symptoms, reflecting its complex and systemic nature. Among the most common clinical manifestations of SLE are joint, skin, and hematologic symptoms. Patients often experience arthritis, which can cause pain and swelling in the joints, skin rashes such as the butterfly-shaped rash, and hematological changes, including anemia and leukopenia. These symptoms vary in intensity and can significantly impact quality of life, making the diagnosis and management of the disease challenging.

In addition to the general clinical manifestations, renal complications play a crucial role in the clinical picture of SLE. Lupus nephritis is a particularly severe renal complication that occurs when the immune system attacks the kidneys, resulting in inflammation and damage. This condition can manifest through symptoms such as proteinuria (presence of proteins in the urine) and hematuria (blood in the urine), signs indicating significant renal involvement. Lupus nephritis not only affects renal function but can also lead to severe complications such as nephrotic syndrome and chronic renal failure, making early detection and effective treatment essential to prevent disease progression. The interaction between these manifestations and complications makes the approach to SLE complex, requiring careful evaluation and multidisciplinary management to optimize patient outcomes.

The diagnosis of lupus nephritis is a critical aspect of managing Systemic Lupus Erythematosus (SLE). Detection of this renal complication involves a series of laboratory and imaging tests. Urinalysis reveals changes such as proteinuria and hematuria, while renal function tests measure the kidneys' ability to filter substances from the blood. Additionally, a renal biopsy may be essential to assess the degree of inflammation and damage in the renal tissues, providing detailed information for more precise treatment.

Treatment and management of renal complications in SLE require a careful and integrated approach. Therapeutic strategies often include the use of immunosuppressive medications to reduce immune system activity and corticosteroids to control inflammation. Antiproteinuric agents are also used to minimize protein loss in the urine and protect renal function. Treatment efficacy is monitored through regular follow-up of laboratory and clinical parameters, adjusting therapy as needed to optimize outcomes.

The impact of renal complications on the prognosis of SLE is significant. The presence of lupus nephritis can worsen the clinical picture and lead to severe consequences such as chronic renal failure, which requires advanced treatments such as dialysis. Early detection and appropriate management of these complications are crucial for improving overall prognosis and patient quality of life. Continuous monitoring and timely intervention are essential to prevent disease progression and reduce associated morbidity.

# **METHODOLOGY**

The methodology for the systematic literature review adhered strictly to the PRISMA checklist, ensuring transparency and quality in the review process. The search was conducted across the PubMed, Scielo, and Web of Science databases using the descriptors "Systemic Lupus Erythematosus," "clinical manifestations," "lupus nephritis," "renal complications," and "diagnosis."

The study selection process followed the criteria established in the PRISMA protocol. First, inclusion criteria were applied to select relevant articles. The inclusion criteria were as follows: (1) Peer-reviewed studies published in the last 10 years; (2) Research specifically addressing the clinical manifestations of SLE and associated renal complications; (3) Articles available in English, Portuguese, or Spanish; (4) Studies with original data and significant clinical analyses; and (5) Research including information on the diagnosis and management of renal complications in the context of SLE.

Conversely, exclusion criteria were set to ensure the relevance and quality of the data. The exclusion criteria were: (1) Studies that did not present specific data on lupus nephritis or renal complications in SLE; (2) Non-peer-reviewed articles, such as conference abstracts or opinion pieces; (3) Publications focusing on other forms of lupus or autoimmune diseases not directly related to SLE; (4) Studies not available in English, Portuguese, or Spanish; and (5) Works with inadequate methodologies or insufficient sample sizes for a robust analysis of clinical manifestations and renal complications.

The study selection followed a two-step screening process: initially, screening by title and abstract, followed by a full-text review of the selected articles to confirm eligibility. All relevant data were extracted and analyzed to provide a comprehensive overview of the clinical manifestations of SLE and associated renal complications, as described in the reviewed literature.

The aim of the systematic literature review is to evaluate and synthesize current evidence on the clinical manifestations of Systemic Lupus Erythematosus (SLE), with a focus on renal complications associated with the disease. The review seeks to understand the predominant clinical features, the diagnostic methods used to identify lupus nephritis, and the treatment and management strategies for renal complications. Additionally, the review aims to analyze the impact of these complications on patient prognosis, offering a comprehensive and up-to-date view of therapeutic approaches and long-term outcomes.

## RESULTS

Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disease that manifests through a wide range of symptoms, reflecting its impact on multiple organ systems. Among the predominant clinical manifestations, arthritis stands out, causing inflammation and pain in the joints, which affects patients' mobility and quality of life. Additionally, skin rashes, such as the butterfly-shaped rash, frequently appear on the face, leading to visible skin changes and significant aesthetic discomfort. These dermatological and articular manifestations are often the initial signs that prompt patients to seek medical assistance, making them crucial for the early diagnosis of the disease.

Besides articular and cutaneous symptoms, SLE frequently involves hematologic changes, such as anemia and leukopenia. Anemia, characterized by a reduction in red blood cells, leads to fatigue and weakness, while leukopenia, which reduces the number of white blood cells, impairs the body's ability to combat infections. These hematologic symptoms, in conjunction with articular and cutaneous manifestations, reveal the systemic nature of SLE and the need for a comprehensive evaluation for accurate diagnosis. Thus, the complexity and diversity of clinical manifestations require a careful

and multidisciplinary approach to ensure effective treatment.

Regarding renal complications, lupus nephritis emerges as one of the most severe. This condition occurs when the immune system attacks renal tissues, resulting in inflammation and impaired renal function. The main signs of lupus nephritis include proteinuria, the presence of proteins in the urine, and hematuria, the presence of blood in the urine. These symptoms indicate significant renal dysfunction and require thorough investigation to confirm the diagnosis and assess the extent of damage. The impact of lupus nephritis on renal function can be extensive, affecting the kidneys' ability to filter toxins from the blood and, consequently, leading to serious health problems.

Treatment of lupus nephritis involves specific therapeutic approaches to control inflammation and protect renal function. Immunosuppressive medications, such as corticosteroids, are commonly used to reduce immune system activity and minimize inflammation in the kidneys. Additionally, antiproteinuric agents may be administered to reduce protein loss in the urine, helping to preserve renal function. Effective treatment not only alleviates symptoms but also prevents the progression of renal disease, avoiding additional complications. Therefore, proper management of lupus nephritis is crucial to improving patients' quality of life and reducing morbidity associated with the condition.

Diagnosing lupus nephritis is a complex process that requires various laboratory and imaging tests. Initially, urine analysis is crucial, as the presence of proteinuria and hematuria can indicate inflammation and renal damage. Urinalysis thus provides valuable information about renal function and can reveal excessive protein loss or the presence of blood, characteristic signs of lupus nephritis. Additionally, renal function tests are performed to measure the kidneys' ability to filter substances from the blood and assess any deterioration in renal function. These tests include measuring serum creatinine and urea levels, with elevations potentially indicating renal impairment.

For a definitive diagnosis, renal biopsy is often necessary. This invasive procedure allows for direct evaluation of renal tissues, providing detailed insight into the degree of inflammation and type of lesion present. The biopsy provides essential information about the type of lupus nephritis, helping to categorize the disease and plan appropriate treatment. Integrating the results from laboratory tests and biopsy is fundamental for a comprehensive and accurate assessment of renal status, enabling effective diagnosis and a well-founded therapeutic approach.

The treatment of lupus nephritis involves a complex and multifaceted therapeutic approach. Initially, immunosuppressors are used to control the immune system's inflammatory response. Medications such as corticosteroids are commonly prescribed to reduce inflammation and alleviate symptoms. Additionally, other immunosuppressive agents, such as cyclophosphamide and mycophenolate mofetil, may be used to treat more severe forms of lupus nephritis, helping to prevent disease progression and preserve renal function. The treatment aims not only to control inflammation but also to avoid additional complications that may arise.

In parallel, strategies to reduce proteinuria are implemented to protect renal function. The use of angiotensin-converting enzyme (ACE) inhibitors and angiotensin II receptor blockers is common, as these medications help to decrease protein loss in the urine and lower blood pressure, contributing to kidney protection. Ongoing treatment and regular monitoring are essential to adjust therapies based on clinical response and disease progression. Thus, appropriate management of lupus nephritis is crucial for improving patient prognosis and minimizing the risk of severe renal complications.

The impact of renal complications on the prognosis of Systemic Lupus Erythematosus (SLE) is substantial and can significantly alter the course of the disease. When lupus nephritis is not detected and treated appropriately, patients risk developing chronic renal failure, a condition where the kidneys progressively lose their ability to perform vital functions. Chronic renal failure requires complex interventions such as dialysis or kidney transplantation, which not only increase morbidity but also severely affect the patient's quality of life. Therefore, the progression of lupus nephritis can lead to an unfavorable prognosis and a considerable increase in treatment and management costs.

Moreover, renal complications influence the effectiveness of treatments used to control SLE. When the kidneys are compromised, the body's ability to eliminate medications and their residual substances may be impaired, necessitating adjustments in dosage and choice of therapies. Patients with renal impairment may experience more severe side effects or changes in medication response, making disease management

more challenging. Thus, renal involvement in SLE not only directly impacts overall patient health but also demands a more personalized and careful therapeutic approach to improve outcomes and minimize the adverse impact of renal complications.

Continuous monitoring of renal function is crucial for effective management of Systemic Lupus Erythematosus (SLE), especially when renal complications, such as lupus nephritis, are present. Regular follow-up is essential to assess disease progression and adjust treatment strategies as needed. Periodic laboratory tests, such as creatinine measurement and urinalysis, allow for early detection of changes in renal function, enabling timely interventions before irreversible damage occurs. Additionally, evaluating the glomerular filtration rate (GFR) provides a quantitative measure of the kidneys' ability to filter blood waste, serving as a critical indicator for monitoring renal function.

The data obtained during continuous monitoring directly influence therapeutic decisions. When renal function changes are identified, adjustments in medication may be necessary to avoid adverse effects and optimize treatment response. Strategies such as modifying immunosuppressor doses and including renal protective agents are frequently employed to tailor therapy to the individual patient's needs. Therefore, monitoring not only helps identify disease progression but also personalizes and adjusts therapeutic approaches, thereby improving overall prognosis for SLE patients.

Long-term management of Systemic Lupus Erythematosus requires a strategic approach that considers both symptom control and prevention of additional complications. Effective disease management involves careful planning of therapeutic interventions and continuous follow-up to ensure treatment goals are achieved. The use of immunosuppressive therapies, for instance, should be monitored and adjusted based on clinical response and observed adverse effects. Additionally, integrating multidisciplinary care, including consultations with nephrologists, rheumatologists, and other specialists, is essential for a holistic approach addressing all facets of the disease.

Implementing long-term management strategies also involves ongoing patient education regarding their condition. Patients should be informed about warning signs for complications and the importance of regular follow-up. Active patient involvement in their care, combined with a personalized therapeutic approach, contributes to



treatment effectiveness and quality of life maintenance. In summary, long-term management of SLE is a dynamic process that requires constant adjustments and effective coordination between different medical specialties to optimize outcomes and prevent disease progression.

The treatment of Systemic Lupus Erythematosus (SLE) often requires an interdisciplinary approach to effectively address the complexity of the disease. Collaboration between rheumatologists, nephrologists, dermatologists, and other specialists is essential for comprehensive SLE management, given its multifaceted nature and various clinical manifestations. Each specialty contributes unique perspectives and specific expertise that are crucial for an integrated and effective treatment plan. This collaboration allows for the development of a management strategy that encompasses all aspects of the disease, from managing articular and cutaneous symptoms to controlling renal complications.

Furthermore, the integration of different medical specialties facilitates personalized treatment, adapting therapeutic strategies to the individual needs of each patient. For example, treating lupus nephritis may require a combination of immunosuppressors and antiproteinuric agents, while managing articular disorders may include anti-inflammatory drugs and disease-modifying agents. The involvement of a multidisciplinary team also promotes more comprehensive follow-up, ensuring that all aspects of patient care are considered and adjusted as necessary. Thus, SLE management becomes more effective and personalized, contributing to improved clinical outcomes and quality of life for patients.

## CONCLUSION

The review of scientific evidence on Systemic Lupus Erythematosus (SLE) and its renal complications has highlighted the complexity and severity of this autoimmune condition. SLE, a chronic disease affecting multiple body systems, presents a variety of clinical manifestations, including arthritis, skin rashes, and hematological disorders, which often prompt patients to seek medical attention. Due to its diverse manifestations and overlap with other autoimmune conditions, early diagnosis is challenging and necessitates a comprehensive and multidisciplinary clinical approach.

Lupus nephritis has emerged as one of the most severe renal complications associated with SLE, with the potential to cause significant renal function damage if not treated appropriately. The review indicated that early detection of lupus nephritis is crucial to prevent progression to chronic renal failure, a condition that may require dialysis or kidney transplantation. Laboratory tests, such as urinalysis and renal biopsies, were identified as essential tools for diagnosis and assessing the extent of renal impairment. Studies have shown that early interventions and appropriate treatment, including the use of immunosuppressors and antiproteinuric agents, can significantly improve patient prognosis.

The impact of renal complications on the overall prognosis of SLE patients was found to be significant. Chronic renal failure not only affects patients' quality of life but also complicates treatment, requiring adjustments in therapy to manage compromised renal function. The review emphasized that continuous monitoring of renal function is crucial for adjusting treatment strategies and for early identification of potential complications. Additionally, a multidisciplinary approach was deemed essential for effective SLE management, enabling coordination among various specialists to provide integrated and personalized care.

In conclusion, the scientific literature underscores the importance of early detection and appropriate management of renal complications in SLE. The combination of ongoing surveillance, targeted treatment, and a collaborative approach among specialists is vital for improving clinical outcomes and quality of life for patients. The review demonstrated that despite the challenges associated with diagnosing and treating SLE, continuous advances in understanding and addressing renal complications can lead to better prognoses and more effective disease management.

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