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Original Research

Characteristics of Neuropsychiatric Systemic Lupus Erythematous in Dr. Sardjito General Hospital

Ronny Tri Wirasto[1], Winengku Basuki Adi[2]

[1]Department of Psychiatry, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia
[2]Dr. Sardjito General Hospital, Yogyakarta, Indonesia

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Correspondence Author:
Email: winengkubasuki86@mail.ugm.ac.id

Abstract

Introductions: Systemic lupus erythematosus (SLE) is one of the diseases that affects the system organs. Neuropsychiatric SLE (NPSLE) refers to the display of SLE involving both neurologic and psychiatric conditions. **Methods:** This retrospective study used inpatient and outpatient data from patients diagnosed with unspecified SLE and also included psychiatric manifestations between 2017 and 2021. **Results:** The patients' age range was from under 10 to over 70 years old, and the average age was 31.49 years old. The highest percentage was between 31 and 40 years old, which was 27%. Out of 100 patients, 61 received the majority of their care from the internist. The highest percentage of psychiatric disorders was unspecified depressive disorder, with 17%. The second-largest proportion was other specified neurotic disorders, which was 11%. Additionally, 10% of the patients experienced a mild cognitive illness. Based on gender, women had a higher proportion compared to men. **Conclusions:** Our study showed that there were 100 NPSLE cases over five years, and the highest percentages were depressive disorder, neurotic symptoms, and mild cognitive disorder.

Keywords: Systemic Lupus Erythematous, Mental Disorder, Disease Manifestation, Epidemiology, Mental Health

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Introductions

The systemic and chronic illness known as systemic lupus erythematosus (SLE) affects several system organs. Immunological complexes build up in tissues, immunological intolerance is missing, self-antigen-specific autoantibodies are created, and the condition causes systemic inflammation [1]. Complex pathophysiologies, clinical presentations, and systemic lupus erythematosus (NPSLE) symptoms include neurological and mental problems [2]. SLE involves many clinical manifestations and presenting patterns, including articular and mucocutaneous involvement, renal and haematological illnesses, and symptoms affecting the nervous system. The ACR classification defined 19 NP syndromes into central, peripheral, and autonomic groups and described the diagnostic criteria and workup to determine each NP picture [3].

Neuropsychiatric SLE (NPSLE) is a presentation of SLE which influences psychiatric and neurologic systems [4] and one of the least recognised aspects is neurologic and psychiatric. It is frequently linked to a bad prognosis [5]. According to findings in the literature, NPSLE affects between 27% and 80% of persons with SLE [6-9]. The many study designs and the considerable variety of NP presentations most likely bring on this vast range. The variety and variability of NP presentations imply that various pathogenetic processes cause NPSLE. The wide range demonstrates the need for a precise definition, a diagnostic consensus, and comprehensive research on this topic [10]. Furthermore, there is no comprehensive research on the frequency of common psychological signs in SLE patients. Due to the lack of a consensus diagnosis and a precise criterion, psychological symptoms in SLE patients frequently go untreated [11-13].
Systemic lupus erythematosus can cause psychiatric problems and diseases of the central nervous system (CNS). The prevalence and manifestations of neuropsychiatry manifestations of NPSLE vary [14]. It is also possible to classify both diffuse and localised NPSLE symptoms. Psychotic symptoms including auditory and visual hallucinations occur as a result of psychological symptoms that are present in most diffuse cases and individuals with localised NPSLEs showed a significant frequency of immunological disorders together with cerebral vascular disease [15, 16].Generally, approximately one-third of the neuropsychiatry cases were induced directly by SLE. Furthermore, it is still unclear whether the psychiatric manifestations should be considered as a display of CNS lupus or a specific psychological occurrence of mental illness [17-19]. Therefore, in this study, we aimed to describe the characteristics of patients presenting with NPSLE in Dr. Sardjito General Hospital between January 2017 to January 2021.

Methods

This retrospective research includes inpatient and outpatient data from 2017 to 2021 at Dr. Sardjito General Hospital, a tertiary hospital in Daerah Istimewa Yogyakarta, Indonesia, with unexplained SLE and mental symptoms. The variances in mental symptoms were investigated. All patient medical records with relevant ICD-10 diagnostic codes were gathered from the hospital's medical history archives. The Ethical Committee of the Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia (KE/1012/06/2023), has given its clearance for this study.

Results

From 2017 to 2021, there were one hundred (n=100) patients diagnosed with unspecified SLE who had psychiatric problems. Based on the age distribution, the range was between 10 and 70 years old, and the median age was 31.49 years old. The majority were between 31-40 years old, which included 27%, followed by 21-30 years old (24%) and 11 to 20 years old (21%) (Figure 1).

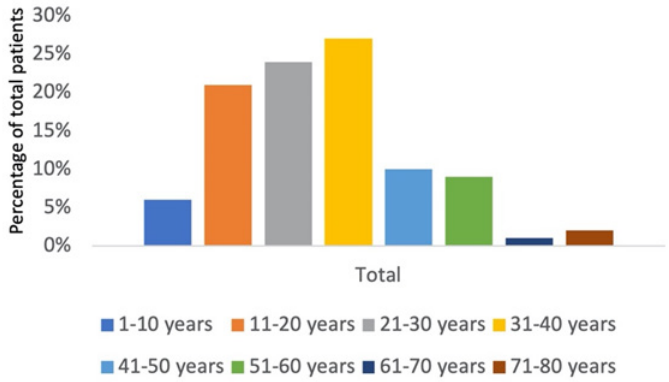

Figure 1 Age distribution among neuropsychiatry SLE patients.

Most of the patients were jointly managed by internal medicine doctors (internists), involving 61 patients, which was the most significant proportion, followed by pediatricians and neurologists, with 13 and 11 patients, respectively. Meanwhile, joint management with geriatric and general practitioner doctors involved two patients each, and the dermatologist, cardiologist, and anesthesiologist had one patient each (Figure 2).

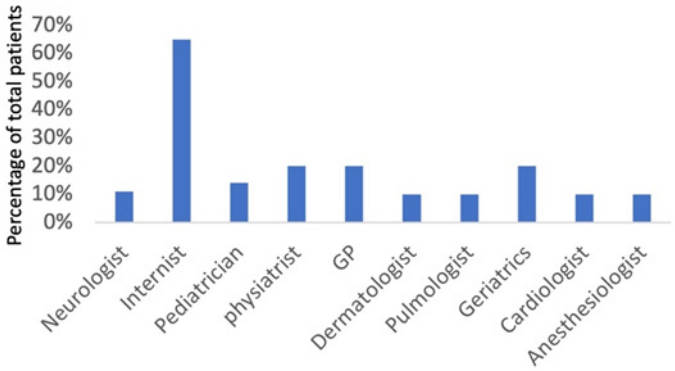

Figure 2 Dr. Sardjito General Hospital divisions who treated neuropsychiatry cases

Approximately 17% of the mental diagnoses with unspecified SLE were for undefined depressive disease. Mild cognitive disorder came in second with 10%, closely followed by the specified neurotic state at 11%. In all, 8% of patients had both depression and anxiety disorders. 6% of patients had an undiagnosed mental problem, 7% had a severe depressive episode without psychotic symptoms, and 4% had delirium brought on by a recognized physiological condition. Unspecified, panic disorder (episodic paroxysmal anxiety), specific anxiety disorder, and major depressive episode with psychotic symptoms all had the same percentage of 3% for other diagnosed mental conditions linked to acknowledged physiological issues—furthermore, 2% of patients diagnosed with an unspecified mental disorder due to brain malfunction or damage. Other illnesses included organic dissociative disorder, vascular dementia, other developmental speech and language disorders, obsessive-compulsive disorder, bipolar disorder, the most recent severe manic episode with psychotic features, persistent mood disorder, generalized anxiety disorder, psychological and behavioral factors associated with disorders

or diseases classified elsewhere, expressive language disorder, follow-up examination after psychotherapy, unspecified (Figure 3).

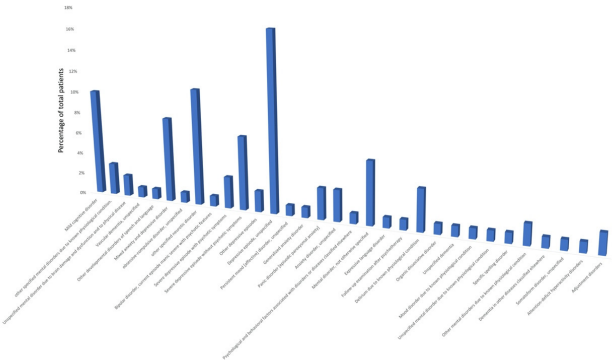

Figure 3 The psychiatric problems which appear with unspecified SLE diagnoses

The total number of patients based on gender among 100 patients showed that there were more women than men. Ninety percent of women had unspecified SLE disease with psychiatric manifestations, mainly in their productive age (Figure 4).

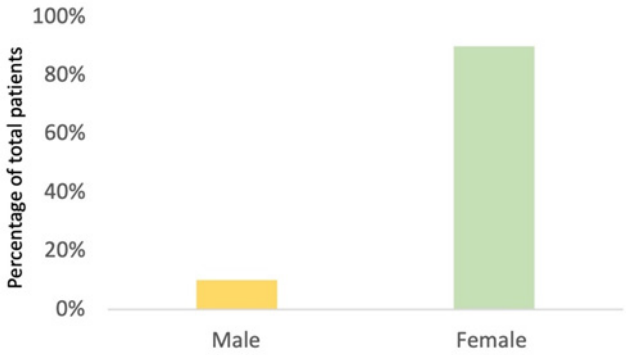

Figure 4 Comparison between genders among neuropsychiatry SLE patients.

Discussions

This study presents the characterization of neuropsychiatric cases in Dr. Sardjito General Hospital, Yogyakarta, Indonesia, between 2017 and 2021. One hundred cases of NPSLE were identified and characterized. Less than 40% of neuropsychiatric symptoms in SLE patients can be proven to be caused by the condition (referred to as "primary NPSLE"), although neuropsychiatric symptoms are widespread. The remaining cases are referred to collectively as "secondary NPSLE" and are brought on by causes unrelated to SLE, such as infections, metabolic problems, and medication side effects. The incidence of NPSLE varies dramatically between 12% and 95%, according to the figures in the article, depending on the length of the disease, the attribution of neuropsychiatric episodes to SLE, the cohort's ethnicity, and other variables [20]. The majority of NPSLE episodes, up to 40–50%, may, however, occur around the time of beginning or during the first two years following SLE diagnosis, according to various studies [17]. Depending on the aetiology, kind of presentation, level of nervous system involvement, and response to therapy, NPSLE may partially or disappear. NP symptoms are linked to greater mortality, worse life quality, and higher unemployment rates [16].

The aetiology of NPSLE is extremely complex; the precise mechanisms are still largely unclear and, in certain cases, have been the subject of intense controversy. Neuropsychiatric symptoms of the kind seen by SLE patients are unlikely to be attributed to a single underlying mechanism. There

are undoubtedly several factors at play, including TNF, colony-stimulating and macrophage-stimulating factors, direct neuronal cell death, blood-brain barrier dysfunction, vascular occlusion, neuroendocrine-immune imbalance, tissue and neuronal damage brought on by autoantibodies, and proinflammatory cytokines like Interleukin-1 (IL-1, IL-6, and IL-17), tumour necrosis factor, and IL-1 [1, 21]. The pathophysiological concept of psychiatric NPSLE suggests that the distinctive feature of psychiatric NPSLE symptoms may be neuronal dysfunction (impairment of synaptic transmission and mitochondrial metabolism) brought on by antibodies and further exacerbated by cytokines. It is still unknown why particular cytokines or antibodies mediate particular psychiatric manifestations like depression or lupus psychosis and why neuronal malfunction particularly generates psychiatric symptoms. This query offers an intriguing subject for further investigation [11, 19, 22].

When figuring out the cause of a patient's unique case of a joint NP event, it might be challenging to distinguish between SLE and non-SLE causes. In the new analysis, most mood problems were associated with non-SLE causes, often with two attributions of varied severity. Patients on immunosuppressive drugs may experience fewer mood disorders, suggesting that treating an autoimmune-mediated illness is effective. Although most mood problems are not the primary symptoms of the disease, a panel of lupus autoantibodies often associated with NPSLE and a lack of correlation with overall SLE disease activity suggest otherwise. In addition, at least one research failed to find a relationship between increased IFN-1 production and depression in SLE patients. However, SLE usually includes dysregulated type-1 interferon (IFN-1) production and has been associated with various NP events, including mental disorders [23].

The most common symptoms of adult SLE, according to a previous study, were headaches, which ranged from 20% to 40%; cognitive disorder, which was present in 10% to 20% of cases; seizures; and cerebrovascular disease, both of which were present in 7–10% of cases. Anxiety disorder was present in 4%–8% of cases [5, 24]. Another study found that depression is the most prevalent NP condition, affecting 10.8% to 39.6% of SLE patients (6). The general population frequently suffers from depression. However, people with chronic conditions receive it more frequently than other patients. About 15% of SLE patients show signs of depressive disorders [25]. The majority of NPSLE manifestations in Dr. Sardjito General Hospital were depressive disorder (17%), followed by other specified neurotic disorder (11%), and mild cognitive disorder (10%). The physical restrictions and stress of having a chronic illness may have contributed to the frequent anxiety and depression symptoms in SLE patients. Psychological distress may coexist with SLE symptoms such as fatigue, physical disability, and poor performance. In order to identify individuals who have these disorders so that treatment can be given to relieve psychological anguish and restore general function, other diagnostic procedures, such as short self-report questionnaires, may be helpful. Anxiety disorder sufferers frequently experience discomfort when sharing their symptoms in public [17]. It is crucial to comprehend the pathophysiologic causes of NPSLE in order to assess the situation and create efficient therapies [19].

A study conducted by Jeltsch-David and Muller [1] found that the incidence of NPSLE in females was more common than males, with the highest incidence rate among women in childbearing years and possibly related to the hormonal changes [1]. Meanwhile, results also showed that women were more frequently diagnosed with NPSLE than men (90% vs. 10%), and the peak incidence in age was between 31 and 40 years old, with age 20-30 as the second most common age group. Most NPSLE cases are mainly treated by an internist in Dr.

Sardjito Hospital. Our findings showed that more than 50 percent of cases with NPSLE involved collaboration between an internist and a psychiatrist. Pediatricians and neurologists also often collaborate with the diagnosis and treatment of patients with NPSLE. The primary factors affecting long-term outcomes in SLE include age, sex, race/ethnicity, genetic profile, environmental factors like smoking, disease activity, major organ involvement, such as lupus nephritis, CNS involvement, comorbidities, such as cardiovascular disease and serious infections, coexistence with APS, treatment adherence, socioeconomic factors, and access to care [26]. The psychiatrist typically has a role to be a Consultant- Psychiatric Liaison who deals with the explanations of our current understanding of advances in the medical science including imaging modalities and collaborates with other healthcare providers to help people who are suffering from a combination of mental and physical diseases.

Conclusions

Our study reported that SLE has broad manifestations, and one of the types can be NPSLE. We identified and characterized 100 cases between January 2017 and January 2021 in Dr. Sardjito General Hospital. In order to optimize therapy, it would be valuable for psychiatry staff and other medical departments to know the characteristics of these NPSLE cases. The most significant proportions of NPSLE manifestations were depressive disorders, anxiety and neurotic symptoms were the second, and mild cognitive illness was the third. Overall, NPSLE affected more females than males. This neuropsychiatric disease was most frequently identified among 31-40 years old patients who had unspecified SLE.

Declaration of conflicting interests

The authors of this study have not revealed any possible conflicts of interest related to its research, writing, or publishing.

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Ethical approval

Data availability

The study's supporting data can be obtained upon request from the corresponding author (WBA).

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