



## Case Report

# Management of Depression in Children with Systemic Lupus Erythematosus

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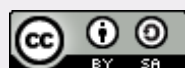
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### Abstract

Depression is a common mental comorbidity of systemic lupus erythematosus (SLE), which occurs in 30% of SLE patients [1]. Depression and anxiety contribute to increased mortality in patients with lupus and are associated with cardiovascular disease, suicidal ideation, and physical disabilities [2]. Depression and treatment non-adherence are two target interventions that have the potential to increase autoimmune disease in (SLE). This article will discuss a case of depression in an adolescent girl with SLE and review available treatment options for depression in SLE. Psychiatric assessment was conducted in this article. Depression was diagnosed using the Children Depression Inventory. For pharmacotherapy, the patient received fluoxetine 10 mg in the morning and clobazam 5 mg at night for 14 days. Psychological development, evaluation of nutritional intake, and side effects of drugs were monitored. The patient also received psychotherapy and family psychoeducation support, establishing good parenting styles and social interactions with the surrounding environment. After treatment, the patient's depression symptoms improved and was able to carry out activities and routines as usual, and her compliance to treatment returned to normal.

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## INTRODUCTION

Depression in adolescents suffering from SLE can affect about 60% of comorbidities. SLE can involve immune components, antibody and complement system involvement, cytokine regulation. [2] Depression and medication non-adherence are two potential targets for increasing SLE severity. Ordinary society and the lack of inadequate education can exacerbate the complication of SLE. [3] Depression and SLE can reduce the quality of life and prognosis which can impact poor health in adolescents. This article will discuss a case of depression in a teenager suffering from SLE, its available antidepressant treatment options, and discussing medical and psychosocial problems in treating adolescents with SLE. [4]

Treatment regimen in SLE should not leave those for mental illnesses in SLE patients. Regarding the importance of therapy for depression in SLE patients, this article will discuss a case of depression in an adolescent girl with SLE, and review available treatment options for depression in SLE.

## CASE

We examined A teenage girl who was lying in hospital pediatric inpatient ward Bona 1 for medical treatment. The patient was consulted by pediatric colleagues because of chronic illness assistance, poor adherence to medication and lack of enthusiasm. The patient told that since 2 weeks ago, she felt bored and sad in relation to her illness and the treatment she was taking. The patient did not want to take medication and was tired of constantly taking medication. The patient had wanted to stop taking medication for reasons of being bored.

The patient had experienced autoimmune disorders since 2017, but her SLE diagnosis had only be known in the past 3 months. The patient had been hospitalized six times in the children's division of Rs Dr. Soetomo. According to the doctor who treated her, the patient was treated because of problems with SLE and high blood pressure. The patient's mother explained that her child's immunization was not complete. The patient was obedient, unemotional, tend to be calm and do not like to get angry. The patient was cared for by her grandmother. From birth, the patient's development is normal until 2017, when she got diagnosed with autoimmune disorder.

Before being given therapy, the patient was examined by the Children Depression Inventory (CDI) and the results were: 17, which means positive for depression. The patient was diagnosed with moderate depressive episodes without somatic symptoms and a differential diagnosis with organic depression. The patient

received fluoxetine 10 mg in the morning and clobazam 5 mg at night for 14 days. Patients during treatment are monitored for psychological development, evaluation of nutritional intake, side effects of drugs and receive psychotherapy and family psychoeducation support, establishing good parenting styles and social interactions with the surrounding environment.

## DISCUSSIONS

SLE is a chronic autoimmune disease that can cause inflammation in several parts of the body, including the skin, kidneys, joints, kidneys and brain and can be experienced by anyone. [5]

Circulating autoantibodies are produced in large quantities in patients with SLE [6]. Adolescents with SLE are rare, the annual incidence rates range from 0.3 to 0.9 percent per 100,000 adolescents and 3.3 to 8.8 percent per 100,000 in children. The frequency of SLE in children and adolescents is increasing in numbers for Hispanics, Asians, Americans and Africans. Most of the sufferers are female and productive age between 15-44 years but can affect men, children and adolescents. [5] The incidence of SLE is higher in girls compared to boys [7].

According to research studies conducted by the John Hopkins Center reported an association between SLE and depression in some patients. In lupus patients, psychological problems are common. The data show that the incidence of depression and anxiety in lupus patients is twice as high as that of the general population. In addition, depression and anxiety contribute to increased mortality in patients with lupus and are associated with cardiovascular disease, suicidal ideation, and physical disabilities. [2]

There are a lot of risk factors that may cause SLE which are:

- 1) Genetic: there maybe 100 gene loci associated with the susceptibility of a person to develop SLE, some of the codes include the ones coding complements C2, C4, C1q, C1r, C1s, and nucleotide polymorphisms [7].
- 2) Environment: plays a role in SLE including viral infections, exposure to UV rays, smoking, some drugs.
- 3) Viral infection: Epstein-Barr Virus (EBV) can trigger SLE [8]. In some patients with SLE, abnormal T cell response to EBV infection can lead to an increase in the amount of EBV DNA in the blood in SLE patients.
- 4) UV light exposure which can trigger DNA damage that changes gene expression which can cause gene expression and cause fragmentation of nucleic acids and trigger apoptosis or cell death.

5) Drugs: Several types of drugs cause DNA methylation such as hydralazine. Hydralazine inhibits signaling pathways leading to decreased expression of DNA methyltransferase mediating DNA methylation. The disruption of the DNA methylation process causes impaired gene expression and mediates immune system activation [9].

6) Smoking and Inhaling Silica [10] which triggers an inflammatory response in the epithelial and mononuclear cells in the lungs.

7) Hormones and Gender: Women of reproductive age have a higher chance of developing SLE. Several factors underlie this, namely the female hormone estrogen which can modulate lymphocyte activation [11].

8) Several other risk factors that can trigger symptoms of SLE, namely Babies born prematurely ( $\geq 1$  month earlier); Low Birth Weight (<2500 gram); Children exposed to pesticides; Pregnancy; and Vitamin D deficiency. [12]

SLE has a unique characterization of symptoms and signs, which is stated in table 1.

**Table 1. Signs and symptoms of SLE**

<b>1. Rash</b>	An erythema bulge covering the nasolabial folds[6] There is a malar or a butterfly-like shape on the face, seen about 60 to 85% of the symptoms are usually no itching, erythematous, no scarring.
<b>2. Discoid Rash</b>	Patches of scar tissue that experience arthroporia that are blocked
<b>3. Sensitivity photos</b>	Rash on exposed skin due to sun exposure
<b>4. Mouth ulcers</b>	Ulcers around the mouth and nasopharynx.
<b>5. Arthritis of the joints</b>	Arthritis that occurs is characterized by tenderness around the joints, so that they appear to be swollen. There were also joint pain, bone brittleness, and necrosis
<b>6. Pleuritis of the lungs</b>	A history of pleurisy in the chest area which experienced friction on the lungs so that on auscultation there was friction on the pleura
<b>7. Disorders of the kidneys</b>	Kidney disorders occur in between 50 and 75% of all pediatric and adolescent patients, more than 90% can develop kidney disease. Initial symptoms and signs can include hematuria, proteinuria, hypertension, edema, acute to chronic renal failure, glomerulonephritis. From the urine laboratory examination, it was found that urine protein was more than 0.5 grams / day and the urine sediment was macroscopically significant
<b>8. Hematology laboratory tests</b>	Cytopenia is more frequent, about 50% patients have decreased blood cells. Leukopenia of a mild nature is the most common and can usually occur in adolescents. Microscopic examination showed signs of hemolytic anemia.
<b>9. Immunological system disorders</b>	Immunology affects the DNA system so that antibodies can be disrupted which can result in a positive serological test
<b>10. Immunology effect on nuclear antibodies</b>	Nuclear antibodies can undergo changes both in shape and structure
<b>11. Gastrointestinal disorders</b>	SLE may cause varied manifestations in gastrointestinal tract like abdominal discomfort and pain, bloating, nausea, vomiting, dysphagia, diarrhea, constipation, intestinal hemorrhage and perforation (7).
<b>12. Cardiorespiratory system diseases</b>	Symptoms of SLE in the lungs can include pulmonary bleeding, pulmonary hypertension. Rarely, cardiopulmonary symptoms such as myocarditis, endocarditis of a non-infectious nature. Inflammation in the walls of blood vessels can result in thrombocytopenia, thrombotic purpura, and thrombosis in almost all blood vessels (8).

Source: Levy DM, Kamphuis S. Systemic Lupus Erythematosus in Children and Adolescent

SLE may also cause abnormalities in the central nervous system and peripheral nerves, which can be characterized by [13]: a) Headaches that are tense, continuous, every day, require

medication to relieve pain in the head, in patients it can occur in about 50 to 95%; b) Mood disturbances: Depression can affect adolescents with chronic illnesses, often requiring assistance from

a psychiatric colleague; c) Cognitive impairment: decreased academic performance, impaired short-term memory and concentration; d) Psychotic disorders: Impaired vision and hearing function can be experienced by children and adolescents, so that hallucinations can occur, need assistance and the role of psychiatry in making a diagnosis; e) Seizure: Generalized seizures are more common than focal type. Seizures in adolescents with a history of SLE are rare.

SLE can be treated with Nonsteroidal anti-inflammatory drugs (NSAIDs), oral and intravenous corticosteroids, Immunosuppressive agents for patients with glomerulonephritis, Methotrexate for patients with arthritis, Mofetil mycophenolate for treating lupus nephritis, antimalaria such as hydroxy chloroquine and chloroquine preparations (10), Antihypertension, Cyclophosphamide in people with nephritic Lupus (11), antidepressants, antiepileptic antipsychotics for patients with mental disorders (consulted with psychiatry experts), and Rituximab.

Depression is a mood disorder characterized by feelings of sadness, loss of pleasure and effects of depression. Depression can cause feelings of lack of enthusiasm in carrying out activities and daily activities. [14] Depression occurring in children and teenagers affects their cognitive, social, and emotional development significantly. The earlier the onset of major depression is, the more episodes of lifetime depression occur, and more suicide attempts happen. The quality of life of those who suffered from depression at earlier age is also significantly poorer compared to those who don't [15]. SLE is associated with depression. This can be caused by the effect of the autoimmune disease on the nervous system and the pain and disability which make the patients suffer [16].

## CONCLUSIONS

From the results of the evaluation, we got the patient's developmental condition during treatment and outpatient control after receiving fluoxetine 10 mg and clobazam 5 mg therapy for two weeks and psychotherapy and psychoeducation, the patient improved and was able to carry out activities and routines as usual. Her attending pediatric resident doctor also reported that her compliance of treatment returned to normal, and her determination to recover was high.

Mental health assessment should be done to all patients with SLE, especially those needing long term therapy. In addition to SLE treatment, psychotherapy and psychiatric pharmacotherapy should be administered for SLE patients with depression. Because depression may interfere with patient's compliance to therapy, it should always be treated and monitored.

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## REFERENCES

- [1] L. Zhang, T. Fu, R. Yin, Q. Zhang, and B. Shen, "Prevalence of depression and anxiety in systemic lupus erythematosus: A systematic review and meta-analysis," *BMC Psychiatry*, vol. 17, no. 1, 2017, doi: 10.1186/s12888-017-1234-1.
- [2] A. Fava and M. Petri, "Systemic lupus erythematosus: Diagnosis and clinical management," *J Autoimmun*, vol. 96, pp. 1–13, 2019, doi: 10.1016/j.jaut.2018.11.001.
- [3] A. M. Knight, L. Trupin, P. Katz, E. Yelin, and E. F. Lawson, "Depression Risk in Young Adults with Childhood- and Adult- Onset Lupus: 12 Years of Follow-up," *Arthritis Care Res*, vol. 70, no. 3, pp. 475–480, 2018, doi: 10.1002/acr.23290.Depression.
- [4] D. M. Levy and S. Kamphuis, "Systemic Lupus Erythematosus in Children and Adolescents," *Pediatr Clin North Am*, vol. 59, no. 2, pp. 11345–364, 2012, doi: 10.1016/j.pcl.2012.03.007.
- [5] T. P. Alamanda, A. Taruna, and Y. A. Rahman, "Anak Perempuan Berusia 14 tahun dengan Lupus Eritematosus Sistemik dengan Nefritis dan Hipertensi Grade I," *Majority*, vol. 7, no. 3, pp. 174–180, 2018.
- [6] K. J. Marcante and R. M. Kliegman, *Nelson Essentials of Pediatrics*, Seventh Ed., vol. 37, no. 1. Philadelphia: Elsevier, 2015.
- [7] A. A. Akib, M. Soepriadi, and B. Setiabudiawan, "Lupus Eritematosus Sistemik," in *Buku Ajar Alergi-Imunologi Anak*, Edisi Kedu., A. A. Akib, Z. Munasir, and N. Kurniati, Eds. Jakarta: Ikatan Dokter Anak Indonesia, 2010, pp. 345–372.
- [8] A. H. Draborg, K. Duus, and G. Houen, "Epstein-barr virus and systemic lupus erythematosus," *Clin Dev Immunol*, vol. 2012, 2012, doi: 10.1155/2012/370516.
- [9] P. Iyer, A. Dirweesh, and R. Zijoo, "Hydralazine Induced Lupus Syndrome Presenting with Recurrent Pericardial Effusion and a Negative Antinuclear Antibody," *Case Rep Rheumatol*, pp. 1–3, 2017, doi: 10.1155/2017/5245904.
- [10] C. B. Speyer and K. H. Costenbader, "Cigarette Smoking and the Pathogenesis of Systemic Lupus Erythematosus Cameron," *Expert Rev Clin Immunol*, vol. 14, no. 6, pp. 481–487, 2018, doi: 10.1080/1744666X.2018.1473035.Cigarette.

- [11] M. P. Kassi E, “Estrogen receptor signaling and its relationship to cytokines in systemic lupus erythematosus,” *J Biomed Biotechnol*, vol. 2010, 2010.
- [12] A. Kuhn, G. Bonsmann, H. J. Anders, P. Herzer, K. Tenbrock, and M. Schneider, “The Diagnosis and Treatment of Systemic Lupus Erythematosus,” *Dtsch Arztebl Int*, vol. 112, no. 25, pp. 423–432, 2015, doi: 10.3238/arztebl.2015.0423.
- [13] S. Kivity, N. Agmon-Levin, G. Zandman-Goddard, J. Chapman, and Y. Shoenfeld, “Neuropsychiatric lupus: A mosaic of clinical presentations,” *BMC Med*, vol. 13, no. 1, pp. 1–11, 2015, doi: 10.1186/s12916-015-0269-8.
- [14] C. Donnelly, N. Cunningham, J. T. Jones, L. Ji, H. I. Brunner, and S. Kashikar-Zuck, “Fatigue and Depression Predict Reduced Health-Related Quality of Life in Childhood-Onset Lupus,” *Lupus*, vol. 27, no. 1, pp. 124–133, 2018, doi: 10.1177/0961203317716317.
- [15] K. D. Wagner and D. A. Brent, “Depressive Disorders and Suicide,” in *Kaplan & Sadock’s Comprehensive Textbook of Psychiatry*, B. A. Sadock, V. A. Sadock, and P. Ruiz, Eds. Philadelphia: Wolters Kluwer, 2009, pp. 3652–3658.
- [16] M. Figueiredo-Braga *et al.*, “Depression and anxiety in systemic lupus erythematosus: The crosstalk between immunological, clinical, and psychosocial factors,” *Medicine (Baltimore)*, vol. 97, no. 28, 2018, doi: 10.1097/MD.00000000000011376.