

## COMMENTARY

# The Progression of Lupus and its Manifestation in Women Throughout Age

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## Introduction

Lupus affects 1.5 million Americans annually, with 16,000 new cases being documented each year.<sup>1</sup> However, it's nine times more common in women than in men and it often strikes during childbearing years.<sup>2</sup> Lupus is an inflammatory disease that occurs when the immune system targets and attacks its own tissues. It is a complex condition that can manifest in a lot of different ways, making diagnostics and treatment difficult. Skin, joints, kidneys, heart, lungs, and even the brain are some of the organs that Lupus disease can affect. It may result in organ damage, discomfort, and inflammation, which can cause a variety of symptoms and complications. Ovarian insufficiency or dysfunction can be a form of organ damage in women as well.<sup>3</sup> The Centers for Disease Control estimate that 1.5 million Americans have lupus, which is especially common among women of color.<sup>4</sup> With lupus affecting women of all ages, but more predominantly those who are older in age and of color, it is wise to look at the progression of the disease and the various symptoms they may experience as they become older in age.

## Pediatric and Neonatal Lupus Erythematosus

During the early stages of pregnancy in women, certain autoantibodies that the fetus had exposure to via the placenta (passive mother to fetus), such as anti-La (SSB) and anti-Ro (SSA) resulted in Neonatal Lupus Erythematosus (NLE).<sup>5</sup> Only 2% of NLE cases are estimated to affect fetuses where the mother had Sjogren Syndrome and came into contact with these antibodies.<sup>6</sup> An infant with NLE can be born with low blood cell counts, liver problems and a skin rash. NLE can cause 80% to 95% of severe atrioventricular (AV) block cases where the fetus is younger than 28 days of life (neonatal period).<sup>7</sup> Casualties and mortality rate results in 20% to 30% of infants with cardiac NLE.<sup>7</sup> Medication optimization, constant care, and critical monitoring are required to make sure the fetus is growing and is maintaining proper health. Children are also 15-20% of all Systemic Lupus Erythematosus (SLE) cases in the United States, this includes all ages below 18.<sup>8</sup> The percentage of females suffering from pediatric systemic lupus erythematosus (pSLE) is around 60% or 70%.<sup>6</sup> The symptoms of pSLE tend to have a more severe effect on the children diagnosed with pSLE because they are more susceptible to having problems with their kidney and nervous system due to the immunosuppressants given to suppress the lupus

flares.<sup>8</sup> Since they start with the medications at an age where they are still growing compared to adults with SLE their bodies are stunted and aren't able to grow normally.<sup>9</sup> The symptoms of lupus on children compared to adults with lupus are seen to have a more rapid onset of lupus, lymphadenopathy (the swelling of the lymph nodes), hematological abnormalities, and lupus nephritis.<sup>10</sup> SLE stays within the children's body as they grow older.

### **Lupus in Women and the Elderly**

According to the CDC, as of 2021, it is estimated that in 200,000 Americans diagnosed with SLE, 9 out of 10 of these patients are women ages 15 to 44.<sup>11</sup> Things that may seem regular to the general population pose a challenge to patients with lupus, such as fertility and pregnancy. Fertility in SLE patients does not appear to be altered by Lupus Erythematosus itself; however, problems such as fetal mutation and malformations can occur when women are exposed to cyclophosphamide.<sup>10</sup> Cyclophosphamide is an immunosuppressant drug used to treat patients with SLE. Compared to healthy women, patients with SLE are prone to danger in pregnancy, which puts the mother and baby at high risk. With pregnancy, a patient can expect for their SLE symptoms to flare up. Examples of these escalated symptoms include hypertension, built up fluid in the joints, and shortness of breath.<sup>12</sup> According to UpToDate.com, there was a study conducted which included 385 women who were pregnant with SLE. These patients included women who were non-Hispanic White, and had moderate SLE at the beginning of their pregnancy. The results of this study concluded that 81% of these patients who were pregnant with SLE had normal healthy pregnancies. This study also found that the results of patients without risk factors was 7.8% for adverse pregnancy rates. Those with risk factors had adverse pregnancy outcomes of 58% and mortality of the baby was 22%. The study population was limited, as it did not include women with high SLE activity.<sup>13</sup> Patients with SLE are advised to go through an evaluation prior to contraception as well as a risk assessment to determine whether pregnancy would be suitable. As a woman with SLE ages and progresses in life, her Lupus erythematosus develops proportionally, and vice versa.<sup>14</sup> One factor contributing to this is that as you age, you not only have to deal with your symptoms but also the effects of your disease's prior activity and the harm it has caused. Women diagnosed with SLE may have earlier menopause, which ties in with bone and cardiovascular health.<sup>15</sup> Lupus-related symptoms may

improve with age, however the severity of the symptoms may also increase. For instance, SLE has a heavy effect on the kidneys of a patient. SLE can sometimes lead to lupus nephritis which is the inflammation of the kidneys resulting in kidney failure.<sup>16</sup> Lupus nephritis is most commonly diagnosed in women ages 20-40, usually appearing within 5 years of your first lupus symptoms.<sup>17</sup> Other effects of aging with Lupus include having to take part in multiple treatments for a symptom which was once controllable with one treatment. SLE can also advance into late onset SLE which represents the disorder beginning at the ages 55-60 years of age.<sup>18</sup>

### **Treatment, is it preventable? If not, how can one manage this disease?**

Lupus is a common chronic autoimmune disease found mostly in women and with a general understanding of autoimmune diseases; we can infer that there is no possible cure. Therefore, lupus within itself is not preventable, but it can be manageable to contain and minimize the effects that come with it. Medications such as: hydroxychloroquine (antimalarial), corticosteroids, azathioprine and other immunosuppressants have been proven to reduce pain and inflammation within the kidneys, lungs, and heart.<sup>19</sup> Typically, doctors normally use antimalarial to treat malaria, but these medications can also be useful for treating lupus.<sup>20</sup> It can treat a variety of skin conditions as well as aid in the decrease of pain and swelling of arthritis, one of many common symptoms of lupus. Now certain medications may differ from prescriptions given to patients ranging from different age groups. This is because female teenagers commonly have concerns regarding socialization, body image, psychological state, and competitiveness in sports and in school. They are more likely to experiment with alternative treatments and illicit medications than adults.<sup>21</sup> Before taking any medications, ask your doctor if it can increase light sensitivity. Some medications can make your skin more vulnerable to light, so it is recommended by dermatologists that you protect your skin from the sun. This disease can worsen due to the fact that it causes your skin to become sensitive to ultraviolet (UV) light. Use a protective sunscreen, if you have a darker skin tone consider using a tinted sunscreen, so that it will not leave a white cast on your skin.<sup>22</sup> The goal is to control your symptoms and reduce any inflammation when it takes place. You can do this by suppressing your overactive immune system with immunosuppressants to prevent any flares if they may occur.

## Conclusion

As of 2023, Lupus is still very common affecting over 1.5 million Americans annually with studies showing it most commonly affects women disproportionately compared to men with a 9:10 ratio.<sup>1</sup> Lupus may present multiple symptoms and vary in complications, which can include organ damage, inflammation, and pregnancy difficulties. While there is no current cure for lupus, it can be regulated with medications such as: hydroxychloroquine (antimalarial) and corticosteroids to manage and minimize the effects of symptoms.<sup>20</sup> Changes in lifestyle can also aid in the regulation of Lupus, which in turn has a positive effect on the patient's lives.<sup>23</sup> As of April 27, 2022 the understanding of lupus progresses, it is imperative to prioritize early detection and patient education to promote a higher quality of life for patients.<sup>24</sup> Increased awareness and research efforts are necessary to address disparities in lupus prevalence and outcomes among different communities. Therefore, it is best to control your symptoms and reduce any inflammation if it may occur as age will not worsen the effects of your symptoms as long as you treat them in a timely manner.

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## References

1. Alharbi S. Gastrointestinal Manifestations in Patients with Systemic Lupus Erythematosus. *Open Access Rheumatol*. 2022;14:243-253. Published 2022 Oct 17. doi:10.2147/OARRR.S384256
2. Weckerle CE, Niewold TB. The unexplained female predominance of systemic lupus erythematosus: clues from genetic and cytokine studies. *Clin Rev Allergy Immunol*. 2011;40(1):42-49. doi:10.1007/s12016-009-8192-4
3. Angley M, Spencer JB, Lim SS, Howards PP. Anti-Müllerian hormone in African-American women with systemic lupus erythematosus. *Lupus Sci Med*. 2020;7(1):e000439. doi:10.1136/lupus-2020-000439
4. Clowse ME, Grotegut C. Racial and Ethnic Disparities in the Pregnancies of Women With Systemic Lupus Erythematosus. *Arthritis Care Res (Hoboken)*. 2016;68(10):1567-1572. doi:10.1002/acr.22847
5. Lazaro D. Elderly-onset systemic lupus erythematosus: prevalence, clinical course and treatment. *Drugs Aging*. 2007;24(9):701-715. doi:10.2165/00002512-200724090-00001
6. Leung, Alexander KC. Neonatal Lupus Erythematosus - Autoimmune Diseases. Hindawi, 2 September 2012, <https://www.hindawi.com/journals/ad/2012/301274/>. Accessed 9 June 2023.
7. Diaz-Frias J, Badri T. Neonatal Lupus Erythematosus. In: *StatPearls*. Treasure Island (FL): StatPearls Publishing; June 27, 2022. Diaz-Frias, Josue. Neonatal Lupus Erythematosus Article. StatPearls, 27 June 2022,
8. Lupus in Women. Centers for Disease Control and Prevention. Published June 28, 2022. <https://www.cdc.gov/lupus/basics/women.htm#Source1>
9. Bermas BL, Smith NA. UpToDate. <https://www.uptodate.com/contents/pregnancy-in-women-with-systemic-lupus-erythematosus#H1673942599>
10. Services D of H & H. Lupus and pregnancy. [www.betterhealth.vic.gov.au](https://www.betterhealth.vic.gov.au/health/ConditionsAndTreatments/lupus-and-pregnancy). <https://www.betterhealth.vic.gov.au/health/ConditionsAndTreatments/lupus-and-pregnancy>
11. Mph, J. J. (2020). How Lupus Affects the Aging Process. Verywell Health. <https://www.verywellhealth.com/five-facts-about-lupus-and-aging-2249933>
12. Karvonen-Gutierrez CA, Leis A. Impact of menopause on women with systemic lupus erythematosus. *Maturitas*. 2021 Dec;154:25-30. doi: 10.1016/j.maturitas.2021.09.004. Epub 2021 Sep 11. PMID: 34736577.
13. U.S. Department of Health and Human Services. (n.d.). Lupus and kidney disease (lupus nephritis) - niddk. National Institute of Diabetes and Digestive and Kidney Diseases.

- <https://www.niddk.nih.gov/health-information/kidney-disease/lupus-nephritis#:~:text=Lupus%20is%20an%20autoimmune%20disease,transplant%20to%20maintain%20your%20health>
14. How lupus affects the renal (kidney) system. Lupus Foundation of America. Published 2018. <https://www.lupus.org/resources/how-lupus-affects-the-renal-kidney-system>
  15. Kone-Paut I, Piram M, Guillaume S, Tran TA. Review: Lupus in adolescence. *Lupus*. 2007;16(8):606-612. doi:10.1177/0961203307079562
  16. Lockshin, M. D. (2019, June 14). How Does Lupus Affect People of Different Ages Over Time? HSS. Retrieved June 14, 2023, from [https://www.hss.edu/conditions\\_lupus-across-the-lifespan-children-teenagers-adults-seniors.asp](https://www.hss.edu/conditions_lupus-across-the-lifespan-children-teenagers-adults-seniors.asp)
  17. ni L, Wright RD, Marks S, Beresford MW, Tullus K. Kidney outcomes for children with lupus nephritis. *Pediatr Nephrol*. 2021 Jun;36(6):1377-1385. doi: 1007/s00467-020-04686-1. Epub 2020 Jul 28. PMID: 32725543; PMCID: PMC8084759.
  18. M., Dr. Sruthi. What Is the Life Expectancy of a Child With Lupus? Survival Rate. *MedicineNet*, 1 June 2022, [https://www.medicinenet.com/what\\_is\\_the\\_life\\_expectancy\\_of\\_a\\_child\\_with\\_lupus/article.htm](https://www.medicinenet.com/what_is_the_life_expectancy_of_a_child_with_lupus/article.htm). Accessed 15 June 2023.
  19. Lupus and medication Better Health Channel, <https://www.betterhealth.vic.gov.au/health/ConditionsAndTreatments/lupus-and-medication>. Accessed 15 June 2023.
  20. Medications used to treat lupus. Lupus Foundation of America, 4 August 2021, <https://www.lupus.org/resources/medications-used-to-treat-lupus>. Accessed 15 June 2023.
  21. Lockshin, Michael D. How Does Lupus Affect People of Different Ages Over Time? HSS, 14 June 2019, [https://www.hss.edu/conditions\\_lupus-across-the-lifespan-children-teenagers-adults-seniors.asp](https://www.hss.edu/conditions_lupus-across-the-lifespan-children-teenagers-adults-seniors.asp). Accessed 15 June 2023.
  22. American Academy of Dermatology Association. Lupus and your skin: Self-care dermatologists recommend. *American Academy of Dermatology*, 23 September 2022, <https://www.aad.org/public/diseases/a-z/lupus-self-care>. Accessed 14 June 2023.
  23. Sayadi L, Faezi ST, Hasanpour M, Alahmadi SJ. The Relationship of Lifestyle with Disease Activity among Patients with Systemic Lupus Erythematosus: A Descriptive-Correlational Study. *Mediterr J Rheumatol*. 2021;32(2):124-133. Published 2021 Jun 30. doi:10.31138/mjr.32.2.124
  24. Lupus News. *ScienceDaily*, [https://www.sciencedaily.com/news/health\\_medicine/lupus/](https://www.sciencedaily.com/news/health_medicine/lupus/). Accessed 15 June 2023.

