African-Americans with SLE more responsive to flu vaccine than patients of European descent

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New research shows that African Americans with systemic lupus erythematosus (SLE) had a higher antibody response to influenza vaccination than European American patients. Treatment with prednisone, a history of hemolytic anemia, and increased disease flares were also linked to low antibody response in SLE patients who received the flu vaccine according to the study now available in *Arthritis & Rheumatism*, a peer-reviewed journal published by Wiley-Blackwell on behalf of the American College of Rheumatology (ACR).

The ACR estimates that up to 322,000 adult Americans are burdened with SLE, a chronic autoimmune disease in which the immune system fails to recognize the difference between healthy cells and foreign substances (bacteria and viruses), producing autoantibodies that attack a person's own tissues and organs. Medical evidence shows that infectious diseases are a leading cause of morbidity and mortality for lupus patients, responsible for up to 23% of all hospitalization and 20% to 50% of all deaths. Current clinical practice advises vaccination against common infectious diseases, such as influenza, for patients with lupus to reduce their risk of infection.

"SLE patients are more susceptible to infection which is likely the result of immunosuppressive therapy and inherent deficiencies of the immune system," said lead researcher Dr. Judith James, Chair of the Arthritis and Clinical Immunology Program at the Oklahoma Medical Research

Foundation and Professor of Medicine at the University of Oklahoma Health Sciences Center. "Our study explored multiple factors which influence response to influenza vaccination in SLE patients with active and inactive disease activity."

For the current study, the research team collected blood specimens and disease activity details from 72 SLE patients prior to vaccination and at 2, 6, and 12 weeks following influenza vaccination. An equal number of healthy controls were also recruited and followed. Researchers assessed influenza-specific antibody responses for antibody concentration (Bmax), relative affinity (Ka), and hemagglutination inhibition (HAI). Based on the overall anti-influenza response, SLE participants were categorized as high or low responders.

After vaccination the control group showed greater increase in the total amount of native antibodies compared to all SLE patients. Both the high and low responding patients had a significantly smaller increase in apparent affinity after vaccination compared to the healthy controls. Researchers did not observe a significant difference in HAI between SLE patients and controls, and few study participants had substantial increases in HAI titers after vaccination.

Researchers reported that African American patients were 3 times more likely to be high responders to the flu vaccine than European Americans. Patients taking prednisone (10 mg/day or more) were more likely to have a low response to influenza vaccination (67%) than a high response (47%). SLE patients who had a weak response to the flu vaccine were more likely to have a history of hemolytic anemia and experience moderate to severe disease flares following vaccination, compared to patients who had a greater response.

Dr. James concluded, "Studies investigating biomarkers that could predict which lupus patients are likely to experience a flare following

vaccination are already underway. This information along with serologic tests of patients expected to mount a weak response would help clinicians identify those SLE patients who may need an alternate vaccination schedule or would need to be closely monitored after receiving the influenza vaccine."

More information: "Influenza Vaccination Responses in Human Systemic Lupus Erythematosus: Impact of Clinical and Demographic Features." Sherry R. Crowe, Joan T. Merrill, Evan S. Vista, Amy B. Dedeke, David M. Thompson, Scott Stewart, Joel M. Guthridge, Timothy B. Niewold, Beverly S. Franek, Gillian M. Air, Linda F. Thompson, Judith A. James. Arthritis & Rheumatism; Published Online: May 19, 2011 (DOI: 10.1002/art.30388).

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