Cigarette smoking increases rheumatoid arthritis risk in African-Americans

23 November 2010

A new study determined that African Americans who smoke cigarettes have a higher risk of developing rheumatoid arthritis (RA). RA risk is more pronounced among individuals positive for the HLA-DRB1 shared epitope, a genetic risk factor for RA. Findings from this study -- the largest to date examining the impact of smoking on RA risk in an African American population -- are available in the December issue of *Arthritis & Rheumatism*, a journal published by Wiley-Blackwell on behalf of the American College of Rheumatology (ACR).

RA is a chronic inflammatory disease that affects the joint lining (synovial membrane) and causes pain, swelling and redness in the joints. The ACR estimates that 1.3 million Americans are diagnosed with RA and 75% of those are women. Prior studies suggest cigarette smoking may be associated with increased risk of developing RA. A 2009 health report compiled by the Centers for Disease Control and Prevention estimate that in the African American population, 26% of men and 17% of women 18 years of age and older smoke.

"RA epidemiology has been largely understudied in the African American population," explained Ted Mikuls, MD, MSPH, from the University of Nebraska Medical Center and lead study author. "The aim of our study was to bridge the knowledge gap by determining whether smoking contributes to RA risk in African Americans and define the extent to which this association is affected by genetic risk."

The current study evaluated participants with RA (605) and healthy controls (255) from the Consortium for the Longitudinal Evaluations of African Americans with Early Rheumatoid Arthritis (CLEAR) I study group (RA patients with less than two years disease duration from the time of symptom onset) and the CLEAR II study group (RA patients with any disease duration). Researchers analyzed smoking status (current, former, never), cumulative smoking exposure and genetic risk factor (HLA-DRB1 shared epitope (SE)).

Results showed that patients with RA were slightly more likely to report a status of former or current smoker and less likely to be never smokers than healthy subjects. Heavy smoking (greater than 10 pack-years) was found in 54% of RA patients and in 35% of controls who ever smoked. Researchers also found that RA patients were more likely than controls to have at least one HLA-DRB1 SE-containing allele (40% versus 23%).

"We found a two-fold increase in RA risk among African Americans who were heavy smokers, and this risk increased to more than four-fold in the presence of SE alleles," commented Dr. Mikuls. "Our results suggest that roughly one in six new cases of RA occurring in African Americans could be prevented through smoking cessation or by limiting cumulative smoking exposure to less than 10 pack-years."

More information: "Associations of Cigarette Smoking With Rheumatoid Arthritis in African Americans." Ted R. Mikuls, Harlan Sayles, Fang Yu, Tricia LeVan, Karen A. Gould, Geoffrey M. Thiele, Doyt L. Conn, Beth L. Jonas, Leigh F. Callahan, Edwin Smith, Richard Brasington, Larry W. Moreland, Richard J. Reynolds, and S. Louis Bridges, Jr. Arthritis & Rheumatism; Published Online: August 18, 2010 (DOI:10.1002/art.27716); Print Issue Date: December 2010.

Provided by Wiley