

Decrease in sense of smell seen in lupus patients

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The sense of smell is a complex process of the central nervous system that involves specific areas of the brain. In fact, olfactory dysfunction is seen in various central nervous system disorders that involve immune-mediated mechanisms, such as Parkinson's disease, schizophrenia, Alzheimer's disease and multiple sclerosis. Systemic lupus erythematosus (SLE) is an autoimmune disease that sometimes involves the central nervous system in a condition known as neuropsychiatric SLE (NPSLE).

Research in [mice](#) has shown that NPSLE-like symptoms and olfactory impairment might be induced by autoimmune mechanisms that target specific areas of the brain, but this has not been explored. A new study assessed olfactory function in SLE patients and found that there is a decrease in the sense of [smell](#) compared with healthy controls. The study was published in the May issue of [Arthritis & Rheumatism](#).

Led by Yehuda Shoenfeld of Chaim Sheba Medical Center in Tel-Hashomer, Israel, the study involved 50 SLE patients and 50 age and sex-matched controls. Researchers evaluated three levels of olfactory function: threshold (identifying a stick with an odor from among sticks that didn't have an odor); discrimination (differentiating between two smells); and identification of a smell from among four options. The three scores were combined to form a total TDI score.

The results showed significant olfactory deficits in the SLE patients compared with the controls. SLE patients showed a decrease in olfactory

function in both the threshold and discrimination tests. In addition, the study found that patients with more active disease and past NPSLE manifestations had significantly lower TDI scores. Past research in mice has shown that injection of antibodies linked to NPSLE manifestations induced olfactory deficit and that these antibodies can bind and penetrate cells in limbic areas of the brain, which are associated with the sense of smell. In addition, magnetic resonance imaging has recently shown limbic system involvement in SLE patients. "Although the exact mechanism of olfactory impairment has yet to be elucidated, the possibility of an immune-mediated mechanism is intriguing," the authors note.

The incidence of olfactory dysfunction in the general population is a matter of debate. About one percent of the population is believed to have a loss of the sense of smell; in the study, loss of smell was seen only in SLE patients, 10 percent of whom suffered from this condition. The importance of the sense of smell is easy to appreciate, since the inability to detect odors in daily life, for example in food that has spoiled or leaks in a gas line, could seriously compromise a person's health.

The authors point out that olfaction is unfamiliar territory for rheumatologists and immunologists, but results from this and other studies demonstrate that an autoimmune mechanism may play a role in olfactory impairment. They conclude that "smell decrement has been found to be an early and predictive sign in several CNS diseases, and therefore, might be a useful and easy tool for the physician in early diagnosis of CNS involvement in autoimmune diseases."

More information:

<http://www3.interscience.wiley.com/journal/76509746/home>

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