Nitrite Use May Be Linked to Kaposi Syndrome

Abnormalities in the immune system of 15 healthy homosexual men, who regularly use amyli and butyli nitrates as recreational drugs, were observed by scientists who recently concluded a Kaposi sarcoma and opportunistic infection study.

The scientists suggest that nitrite-induced immune suppression may occur as a result of repeated challenges to the immune system from viral infections, and predispose homosexual men to several other diseases. The nitrites may have also contributed to the recent outbreak of Kaposi sarcoma among homosexual men.

These findings were reported in the Feb. 20 issue of the Lancet. Kaposi's sarcoma is a rare skin cancer that usually occurs in the United States among elderly men or, in a severe form, among persons with weakened immune systems.

However, an increasing number of cases have been reported in the past few years among homosexual men. Opportunistic infections are also seen among patients with weakened immune systems.

Microorganisms that would not be able to multiply in people with normal ability to fight infections can become life-threatening when given the opportunity to infect people with diminished immune defenses.

Some investigators have suggested that nitrite inhalants, which have grown very popular among homosexual men as sexual stimulants, may be immunosuppressive and play a role in the occurrence of the cancer and opportunistic infections such as Pneumocystis carinii, as unusual pneumonia.

The investigators collected data on 15 homosexual male volunteers and similar data were also collected on two Kaposi's sarcoma patients. Of the 15 healthy men, 8 were regular nitrite users (1 to 20 times per month).

Fourteen of the 15 men had antibody to cytomegalovirus (CMV), a type of herpesvirus, indicating past exposure to the virus. Antibody levels were similar for both nitrite users and nonusers.

These data suggest that CMV infection alone is not sufficient to produce the T cell abnormalities found in this study. Researchers have suspected that CMV may play a role in the occurrence of Kaposi's sarcoma and opportunistic infections.

Homosexual Predisposition Considered

The investigators suggest the data provide preliminary evidence that nitrite-induced suppression of the immune system, together with repeated infections with CMV or perhaps other agents, predisposes homosexual men to the diseases.

The body may become "hyperimmunized" by being repeatedly stimulated to defend itself against viruses, the investigators suggest, and thus susceptible to nitrite-induced immunosuppression.

Both Kaposi's sarcoma patients in the study had used nitrates regularly. They had antibody against CMV and low H/S ratios before treatment with chemotherapy.

The Lancet article provides the first immunologic data published on Kaposi's sarcoma patients.

Each of the following contributed to this study: Dr. James J. Goedert, Dean L. Mann, Mark H. Greene, Joseph F. Fraumeni, Jr., and William A. Blattner of NCI; William C. Wallen of NINCS; Douglas M. Strong and Carolyn Y. Neuland of the Naval Medical Research Institute and Uniformed Services University of Health Sciences; and Christine Murray of Biomedical Research Institute, Rockville, Md.

Several aspects of the study should be noted: First, the study group was extremely small. Second, other studies have suggested that frequency of nitrite use may be correlated with number of sexual partners. The potential significance of this association for development of Kaposi's sarcoma and opportunistic infections could not be definitively studied here. And, third, this study, like others, focuses on immune dysfunction as a key factor in the development of the cancer.

It is possible that some other unknown factor associated with nitrite use, but not the drugs themselves, causes the immunosuppression and leads to the development of cancer and opportunistic infections.

A summary of the research is available from the Office of Cancer Communications, 496-6641.