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Study Suggests Link Between Scleroderma, Cancer in Certain Patients

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Patients with a certain type of scleroderma may get cancer and scleroderma simultaneously, Johns Hopkins researchers have found, suggesting that in some diseases, autoimmunity and cancer may be linked.

These findings could lead researchers closer to discovering what causes scleroderma, an incurable autoimmune disease that causes scar tissue to develop in the skin and in major organ systems, and to pinning down why some with scleroderma appear to be at increased risk of cancer. The insights add to the growing body of evidence linking some autoimmune disorders with cancer.

“Our research adds more to the discussion about whether cancer and autoimmune diseases are related and whether cancer may be a trigger for scleroderma,” says Ami A. Shah, M.D., M.H.S., an assistant professor of medicine in the division of rheumatology at the Johns Hopkins University School of Medicine and the study’s lead author.

The small study, which appears online in the journal Arthritis & Rheumatism, looked at blood and tumor samples from 23 patients with both scleroderma and cancer who were treated at the Johns Hopkins Scleroderma Center. Ten percent of the patients treated at the scleroderma center have cancer as well as the autoimmune disease.

The researchers looked for specific immune markers in each patient, determining which type of antibodies the patients made. Those with

antibodies called anti-RNA polymerase I/III had the most closely related onset of cancer and scleroderma, they found. Those patients got both diseases within two years of one another. Similar results were also found in another subset of patients — those who tested positive for none of the known autoimmune antibodies. Researchers suspect there are immune markers in their blood that have yet to be discovered.

The reasons for the apparent link between scleroderma and cancer are not understood, Shah says. And it is unknown whether cancer could be causing scleroderma or if scleroderma could be causing cancer.

Most often, Shah says, the patients developed cancer first and then scleroderma soon after. She says one theory, as yet unproven, is that as the body generates an immune response to fight a tumor, the immune response could trigger the development of scleroderma. It is also possible, she says, that the immune response could successfully defeat a developing tumor but still result in scleroderma.

Another possibility could be that organ damage from scleroderma could predispose patients to cancer. Or it could be that the use of immune-suppressing drugs to treat scleroderma could lead to cancer.

She says that some reports in the medical literature have shown that in cases of concurrent cancer and scleroderma, treating the cancer halted the progression of the autoimmune disorder.

Several other autoimmune disorders also appear to have potential links to cancer, Shah says. This research could have implications for those diseases as well.

Many questions remain and more research is needed, says Livia Casciola-Rosen, Ph.D., an associate professor of medicine in the division of rheumatology at Johns Hopkins' medical school and one of the study's

principal investigators. “Are particular antibodies in scleroderma associated with increased risk of cancer? Maybe we need to look,” she says. “And if you develop both at the same time, does treatment of one affect the outcome of the other?

“This research,” she says, “is really just the beginning.”

Provided by Johns Hopkins University

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