SOUTHWESTERN NEWS

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UT SOUTHWESTERN RESEARCHERS LINK HUMAN LYMPHOMAS TO POLIO VACCINE TAINTED WITH MONKEY VIRUS

DALLAS – March 9, 2002 – UT Southwestern researchers have established a link between human non-Hodgkins lymphomas and a monkey virus carried by some people, possibly opening new avenues for detection, prevention and treatment.

In the study, published in today's issue of the British medical journal *The Lancet*, researchers examined nearly 400 tumors and control tissues, and found the viral footprint for simian virus 40 (SV40) in the tumors of 43 percent of non-Hodgkin lymphoma patients. The virus, predominantly of the B-cell type, was present in 9 percent of Hodgkin lymphoma cases, a significantly lower rate. The percentage of SV40-positive findings among healthy subjects and patients with other types of adult and pediatric cancers, other than bone tumors, was zero to 6 percent.

Approximately 287,000 new non-Hodgkin lymphoma cases are diagnosed worldwide every year.

SV40 was first transmitted to humans between 1955 and 1963 in contaminated batches of polio vaccine. As many as 30 million people may have been vaccinated with the tainted serum. Persons born after 1963 also have been found to carry the virus, but scientists are uncertain how the virus was transmitted to them. Estimates for the number of carriers range between 2 percent and 13 percent of the population, although large population based studies need to be done.

Dr. Adi Gazdar, professor in the Hamon Center for Therapeutic Oncology Research and the Department of Pathology and principal investigator on the study, said the findings fully confirm earlier research on hamsters that associated SV40 with brain and bone tumors, mesotheliomas (tumors in the lining of the lungs and other organs) and B-cell lymphomas.

(MORE)

SV40 previously had been associated in humans with brain and bone cancer and mesothelioma, but the human lymphoma connection is new. The rates of virus detection in HIV-positive and HIV-negative subjects with lymphoma were similar, a fact that came as a surprise to the researchers.

"This potentially could lead to new developments in diagnosis and treatment," Gazdar said.

Dr. John Minna, director of the Hamon Center for Therapeutic Oncology Research, said researchers were looking for a viral connection with lymphoma 20 or 30 years ago, and Epstein-Barr virus (EBV) sequences have been found in some lymphomas of Hodgkin and non-Hodgkin types. But it looked like a strong viral association did not exist.

"This brings that back into the picture," he said.

Minna said it is known that SV40 activates a protein that interacts with and deactivates the proteins that control the normal cellular life cycle, creating immortal malignant cells.

"Could we block that and allow the cell to stop growing?" he said.

While they hold great promise, there is some distance yet between the current findings and any clinically applicable breakthroughs. It is more likely that they will lead to screening and early detection techniques before yielding vaccines or therapies.

"We have some clues, but it's not going to be fast," Gazdar said. "The first thing is for scientists around the world to duplicate our research. Fortunately, Dr. Janet Butel, a noted virologist from Baylor College of Medicine in Houston, has independently obtained almost identical data, which will also be published in *The Lancet*. These two extensive and carefully done studies present a powerful one-two punch against skeptics."

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