

'Scout scans' map the way in non-Hodgkin's lymphoma treatment

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According to a study presented at SNM's 57th Annual Meeting, molecular imaging can evaluate and optimize non-Hodgkin's lymphoma therapy with Zevalin, a front-line radioimmunotherapy drug that uses a dose of radioactive material and mimics the body's own immune response to target and kill cancer cells while sparing nearby healthy tissues.

"By using molecular imaging prior to treatment, physicians can improve the targeting of radioimmunotherapy and even allow for a larger and considerably more powerful [radiation dose](#) to the cancer without damaging surrounding healthy organs," said Nafees Rizvi, M.D., department of [nuclear medicine](#) and PET research, VU University Medical Center, Amsterdam, The Netherlands. "This allows for an individualized approach to treatments, tailoring therapies to the individual patient."

Non-Hodgkin's lymphoma, a cancer of the lymphatic system, is considered the fifth-most common cancer in America. There are many different forms of lymphoma, and treatment is determined based on disease progression and the kinds of cells affected.

Radioimmunotherapy is a relatively new and highly targeted combination of radiation and immunotherapy that uses molecular imaging to pinpoint the exact location of [tumor cells](#). Once therapy has been mapped, physicians inject antibodies matched with a radioactive substance that heads straight for the antigens of cancer cells, much like how the body's natural immune system works against common viruses

and infections. The antibodies bind to the [cancer cells](#), delivering a deadly dose of radiation to the tumor.

This study was conducted to test the effectiveness of a molecular imaging agent called Zr-89-Zevalin, which is used in conjunction with positron [emission tomography](#) (PET), a [molecular imaging](#) technique that images biological process in the body. Zr-89-Zevalin was tested as the imaging agent for "scout scans"—initial PET scans used for treatment planning prior to therapy—for six patients with relapsed B-cell non-Hodgkin's lymphoma scheduled for stem-cell transplant. Participants received PET scans after an injection of the imaging agent and again after receiving radioimmunotherapy. The imaging agent provided an accurate portrait of the biodistribution, or the likely path in the body, of a therapeutic dose of Y-90-Zevalin, without any negative impact from simultaneous injection. Results indicate that Zr-89-Zevalin and PET could be more effective than other imaging techniques and could lead to more effective and personalized therapy with Y-90-Zevalin.

Provided by Society of Nuclear Medicine

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