

Letter from the Editors



Targeted Radionuclide Therapy represented one of the true seminal events in the history of Nuclear Medicine. It was at these editors home institution at Montefiore Medical Center in the 1940's that Dr. Sam Seidlin conceived of using radioiodine therapy for his patient with metastatic thyroid cancer. His reasoned that the innate function of the thyroid in trapping and metabolizing iodine would justify the use of radioactive iodine in treating differentiated thyroid cancer cells. His results were published in the *Journal of the American Medicine Association* on December 7, 1946¹ this was a prophetic date in that it was exactly five years following the Pearl Harbor bombing that initiated the entry of the United States into World War II as well as 16 months following the dropping of the atomic bomb on Hiroshima and Nagasaki to end the war. The United States Congress established the Atomic Energy Commission and was wrestling with the problem of how to harness this devastating nuclear energy. Seidlin's work and publication showed that positive things like curing cancer can be achieved with nuclear energy, as well. The nuclear medicine historian, Dr. Marshal Brucer, referred to Seidlin's seminal paper as the most important article ever written in the nuclear medicine literature because there may not have been any nuclear medicine without it.

Other targeted radionuclide therapies with both Beta and Alpha emitters have subsequently evolved, included antigen-antibody, e.g. ⁹⁰Y-rituxan (Zevalin) for non-Hodgkin's Lymphoma, ²²³Radium (Xofigo) for prostate bone metastasis and most recently, ¹⁷⁷Lutetium-Dotate (Lutathera) for neuroendocrine tumors.

The concept of radio embolization was pioneered by Dr. Irving Ariel, a New York Radiotherapist in the mid-1960's. He utilized Yttrium-90 (⁹⁰Y) Microspheres to treat patients with malignant primary pancreatic and liver tumors.²

In the case of radio-embolization (RE) of liver tumors, the targeting is made possible by the intra-arterial catheterization of the specific arterial blood vessels supplying the tumor. The ⁹⁰Y is infused through the catheter directly supplying the tumor. The primary applications of liver tumor embolization have been primary liver tumors (Hepatomas) and metastatic tumors, particularly from colorectal cancers.

We thank Drs. Moadel and Cynamon for assembling this group of outstanding physicians and scientists who share their expertise and experience in this issue of Seminar

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References

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2. Ariel I: Treatment of Inoperable primary pancreatic and liver cancer by the intra-arterial administration of radioactive isotopes (⁹⁰Y) radiating microspheres. *Ann Surg*: 267-278, 1965