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Abstracts

FUKUSHIMA MEDICAL UNIVERSITY

ICRP INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

THE NIPPON FOUNDATION
For Social Innovation

Current Status on Radionuclide Therapy

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Abstract–Since 1940s I-131 has effectively been applied to hyperthyroidism and metastatic differentiated thyroid cancer as one of the most representative pharmaceuticals for Radionuclide Therapy (RNT). Nowadays RNT is an important treatment option alongside surgery, chemotherapy, and external beam radiation therapy in the management of malignancies, whether curative or palliative. RNT is principally based on the use of molecules that have high-affinity and specificity to tumors as carriers of radionuclides, and thus it has the character of being an efficacious molecular targeting method as well as radiation therapeutics. Although RNT has been well established in some malignancies, it has not demonstrated yet sufficient therapeutic efficacy in others. Recently novel pharmaceuticals and radionuclides have been developed and clinically introduced, which are expanding the application of RNT to a wide range of malignancies. Lu-177 somatostatin receptor ligand therapy has proven to improve survival in patients with neuroendocrine tumors and Ra-223 dichloride has been approved for the treatment of prostate cancer with bone metastasis. Ra-223 is the first alpha-emitter that has obtained drug approval, which substantially encourages the research and development of targeted alpha therapy. This presentation will discuss how we should present radiological protection guidelines to respond and facilitate new technologies of RNT.