SGRRC SSRCR

Swiss Radiopharmacy Day 6th of March 2024 Room K2, FOPH

Schwarzenburgstrasse 157, CH-3003 Berne (Liebefeld/Köniz)

Summary of talks Swiss Radiopharmacy Day 2024!

Characterization and management of radioactive waste from the nuclear medicine department of HUG. *A. Bonvin, HUG*

The nuclear medicine department of the Geneva University Hospital (HUG) produces and administrates radiopharmaceuticals for diagnostic (PET or SPECT imaging) and therapeutic purposes. During the different steps, from production to administration, radioactive wastes are generated. These wastes can include radionuclides with short and long half-lives depending at which steps they are produced. According to Swiss radiation protection regulations, these wastes must be characterized and treated in a way that limits the risk of exposure for the public and the environment and makes them acceptable to society. This presentation will look in detail at 1) the different steps in radioactive waste production, from radioisotope production to radiopharmaceutical administration, 2) the regulations associated with radioactive waste management, 3) the waste characterization tools and methods, and 4) the management carried out at the nuclear medicine department.

Nuclear Medicine: From Theranostics to Immunotheranostics. *N. Schaefer, CHUV Lausanne*

Imaging is undergoing a transformation. Originally developed as a measure solely for assessing the extent of tumours and metastases, it is now evolving into a new standard for better understanding the biology of tumour diseases and deriving future therapy recommendations. In nuclear medicine, this concept is traditionally understood as theranostics, where a target structure in the tumour is first depicted through imaging before being treated with radioligand therapy. Well-known examples include PSMA and SSTR2-based theranostics in prostate carcinomas or neuroendocrine tumours. However, theranostics goes far beyond the classical concept. Medical oncology has undergone a complete transformation, utilizing more advanced concepts today than unspecific chemotherapy. Modern immunotherapies rely on the necessary identification of often heterogeneously distributed immunological checkpoints, local and temporal heterogeneous, mostly immunosuppressive tumour microenvironment as the most significant barrier to successful immunotherapy. Immunotheranostics allow for the detection and more importantly initiation of corresponding local measures, such as local pro-inflammatory low-dose irradiation, to enhance response or reduce lesion resistance. The introduction of immunotheranostics will make oncology much more tailored in the future, with nuclear medicine and its functional biological imaging becoming a relevant part of oncologists' decision-making. However, the ultimate stage of immunotheranostics is not just representation but the immunogenic modulation of tumour diseases to function synergistically with immunotherapies. The low dose, pro-inflammatory irradiation of the tumour microenvironment triggers effects that act synergistically with immunotherapies locally, maybe improving the response rates of immunotherapies in the future. Nuclear medicine, with its functional, immunologically relevant diagnostic imaging, as well as the potential to therapeutically modulate such relevant structures, is thus perfectly positioned to play an active role

in modern oncology and the understanding the basics of tumour immunology are crucial to be part of this process.

Radiation protection of the carers, the public and the environment during Lu-177 radiation therapy. *N. Cherbuin, CHUV Lausanne*

The widespread use of Lu-177 for internal vectorized radiotherapy in nuclear medicine in recent years has brought new challenges for radiation protection. Patients represent a source of exposure for healthcare professionals, their families, and the public, through the release of radioactivity into the environment. However, controlling this exposure requires a hospital stay in appropriate facilities, at the risk of bottleneck if the demand exceeds capacity. We underline the need to improve knowledge in the field to reach the best balance between healthcare needs and radiation protection regulatory frameworks.

To date no other abstracts available.