Intensive Course Particle irradiation: molecular, cellular & tissue effects

I attended an intensive course in term 8.-12.7.2024 in Caen, France in the Oncologic Centre - Centre Francois Baclesse. The course was entitled PIANOFORTE Intensive course "Cellular, molecular and organs effects of particle irradiation with focus on healthy tissue effects". The course took 5 days and included theoretical and practical skills too. During the course, we also had an active part because we prepared a presentation from our work background in the end.

We started with the Radiobiological basis of particle irradiation-induced healthy tissue effects, where we compared our theoretical knowledge about using radiation physicists in medicine and discussed our experiences in our various centers and differences between countries.

The program of course was full of very interesting and respected personalities. One of our presenters was Prof. Jacques Balosso, a professor of Radiotherapy who works in Centre Francois Baclesse who described to us his function as a medical doctor in The Department of Radiotherapy and in lectures explained clinical bases for using particle therapy.

In the Course, we talk about a lot of options for treatment using irradiation. Patients can plan various types of radiotherapy as proton therapy, target radionuclides therapy, and C-ions irradiation. Lectures included a wide range of various effects on healthy tissue-induced irradiation. We discussed about effects on the cardio and vascular system, immune system, signature on micro RNA, oxidative stress, cerebral or vascular effects, or impact on cytogenetics. Some of the effects can be more threatening for pediatric patients or adult patients who undergo radiotherapy at a young age and their consequences on different systems in adulthood.
Last day we visited individual workplace and their devices. At first, we had a visit to the Department of Radiotherapy in Centre Francois Baclesse, where were presented with a few accelerators used for therapy. Our second visit was to CYCLHAD, what is The European Center for Research and Development in Hadrontherapy. It is a mobile treatment system (gantry) with pencil beam scanning (PBS), enabling conformational treatment with 3D modulation of the delivered dose.

This course was interesting for me because I work as a radiation protection officer at The Department of Radiology and I gained information from different sites of radiobiology. For my type of work is very important to know of the impact of different ranges of dose.

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