

The therapeutic potential of FLASH-IOERT

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Over the last few years, several preclinical studies have demonstrated that the FLASH technique in radiotherapy significantly reduces toxicity in various healthy tissues while preserving anti-tumor efficacy. The observation of the FLASH effect across different beam modalities (protons, photons, electrons) paves the way for clinical application, both in external and intraoperative radiotherapy.

More recently, initial human clinical studies have validated the feasibility of delivering an ultra-high dose rate in external radiotherapy, especially with electrons. Moreover, the impressive results achieved with a single high-dose procedure, delivered in an exceptionally short time (less than one second), are particularly promising for intraoperative electron radiotherapy (IOERT).

At conventional dose rates, the efficacy of IOERT in cancer treatments has been well established over the years and is now integrated in many international guidelines.

In this presentation, we will explore the potential benefits of FLASH radiotherapy in IOERT, focusing on toxicity reduction and enhancing tumor control for specific pathologies including sarcomas, breast, pancreatic and rectal cancers.