

Summary progress report from EPTN-WP4 on “Image Guidance in Particle Therapy”

Aswin Hoffmann, Alessandra Bolsi, Markus Stock

October, 5th 2022

Image guidance for particle therapy (IGPT) is essential to guarantee accurate dose delivery and to minimize the effect of range uncertainties related to patient setup uncertainties and anatomical changes occurring during the course of therapy. Multiple imaging modalities for IGPT are available and routinely used clinically. However, due to a lack of standardized procedures for IGPT, most centers have developed their own strategies, which are based on their particular infrastructure, technical implementation and dose delivery strategy.

The first aim of WP4 was to get insight in the current clinical practice parameters of IGPT in the European PT centers. Therefore, multiple detailed surveys for specific localizations classified as abdomen, prostate, brain, breast, cranio-spinal irradiation (CSI) and extremities were sent out in the past few years. Response data has been collected and analyzed by the respective body-site specific sub-working groups with the aim to identify common procedures, their limitations and potential improvements. These results describe the current clinical practice of IGPT in Europe and will be submitted for publication before the end of 2022.

A first IGPT research project on a multicentric evaluation of the inter- and intrafraction patient positioning accuracy for brain tumor patients undergoing PT has been initiated and the study aims and endpoints are currently being defined within the working party. The call to all PT centers will be launched in Q1 2023 after a pilot phase in collaboration with few pre-selected centers has been successfully completed. Centers interested in IGPT will receive a project description, which will clarify the details of the project, its aim and a specific template, setup ad-hoc to facilitate and harmonize the collection of IGPT data for brain tumor patients.

After a long break on in-person meetings due to the COVID-19 pandemic, we are organizing the 5th annual workshop, which will take place on-site at MedAustron in Wiener Neustadt (Austria) on 17th-18th of November 2022. A call to participate in this meeting has already been sent out by the ESTRO office to all centers interested in WP4.

On behalf of the WP4 coordinators,
Aswin Hoffmann (University ProtonTherapy Dresden)
Alessandra Bolsi (PSI)