

平成26年度 《第10回》 重粒子線 医工連携セミナー

平成27年3月20日（金）17:00～

場所：群馬大学重粒子線医学センター カンファレンス室

Imaging in Radiotherapy - For treatment preparation, follow-up and position verification

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In modern radiotherapy, complex dose distributions can be realized, such that a tumor can be exposed to a lethal radiation dose, while nearby healthy tissue can be optimally spared. Dose painting, increasing the dose to the most aggressive part of the tumor, is taking this concept even further. However, such highly complex dose distributions require adequate imaging to ensure tumor coverage and reliable dose delivery. In photon therapy, the use of linac-mounted cone-beam CTs has enabled reliable position verification on a daily basis using 3D imaging.

In the first part of this talk, the use of MRI and PET for delineations in head-and-neck cancer patients will be discussed. How to discover the adequate imaging modality for defining dose painting targets in these patients will be reviewed.

Secondly, MRI can be used to define radiation-induced side effects on the salivary glands. Changes in MRI specific parameters were correlated to the mean dose delivered to both the parotid and the submandibular glands in an early stage after treatment.

In the last part of this talk, the effect of daily anatomical changes in pancreatic cancer patients on the delivered carbon ion dose distribution will be investigated. Whereas CBCT imaging is standard in photon therapy, the use of 3D imaging in carbon ion radiotherapy is not (yet).

Daily CBCT imaging of patients treated in the AMC was used to investigate the effect of anatomical changes. Therefore, carbon ion treatment plans were created for these patients and the daily delivered dose was calculated. The difference between the planned and delivered dose was used as a measure of robustness of the carbon ion treatment.

In future work, an adaptive carbon ion treatment will be simulated using this data.

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= お問い合わせ先 =

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