

Elekta TPS Users Meeting 2012

Marius Treutwein

Department of Radiation Oncology, Regensburg University Medical Center

Franz-Josef-Strauss-Allee 11, D 93053 Regensburg, Germany

Marius.treutwein@ukr.de

Optimization strategies for IMRT and VMAT plans in Oncentra using the example of hypopharynx carcinoma and plan verification

At our hospital all patients with head and neck tumors are treated with IMRT or VMAT technique [1–4]. This anatomical region is one of the most challenging for optimization: a series of sensitive organs at risk (OARs) are located close to the PTV.

Based on the objective function weighting factors and the rather new dose volume objective (DVO) called “surrounding dose fall off” are regarded [5]. A basic set of DVOs for PTV, spinal cord, and parotid glands is presented. The impact of additional structures besides the Target and the OARs is demonstrated. IMRT is used with a nine field technique. Appropriate parameters for VMAT optimization as number of arcs (dual arc), gantry spacing (4°), maximum delivery time (90-120s) based on the above mentioned investigations and another one [6] are introduced.

The last part contains the description of the plan verification: Standard is the comparing dose calculation on a phantom using the calculation program RadCalc. Dose deviations of more than 3% in the reference point are followed by measurements with a 2D array in a phantom irradiated with the original gantry angles (hybrid technique)[7].

References

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