Uveal melanoma (UM) is the most common primary intraocular malignant tumour in adults. The mortality is 40-50% in 15 years, mainly due to liver metastasis. In the recent decades, conservative techniques able to control the disease while preserving the eye have replaced, when possible, the enucleation. Gamma Knife stereotactic radiosurgery (GKRS) is one of the techniques to perform a conservative treatment of UM, as it can deliver very high doses to the target sparing at the same time to the surrounding tissue, creating a high dose gradient. Several studies have shown that GKRS allows the survival, local control and preservation of the eye. The therapeutic dose for this disease is very high (35 Gy to 50%) and it is necessary that the reference isodose is much larger than the tumour volume identified by the diagnostic exams. Several side effects are obviously associated to an important treatment from dosimetric point of view. Despite the deterioration of vision or complete blindness are often reported in the literature as important side effects and several authors argued that with the optimization of the treatment plan in terms of the prescription dose to the target and absorbed doses to critical structures, the visual function loss may be limited. Now-a-days, in the literature there are still no studies designed to investigate the dose-effect relationship of critical structures of interest with reference to adverse events. The aim of our study was to develop a predictive model for the radio-induced side effects in patients affected by uveal melanoma, treated with GKSR. The adverse effect which focuses the attention of the project is the partial or complete loss of the visual function. The aim is to find predictive dosimetric and/or clinical factors to obtain dose constraints to critical structures.

Recent Publications

2. Gigliotti Carmen R, Modorati Giulio M, Di Nicola Maura, Fiorino Claudio, Perna Lucia A, Misericocchi Elisabetta,


Biography

Antonella del Vecchio is a Medical Physicist. She has a long expertise in Imaging, Radioprotection and Gamma Knife Stereotactic Radiosurgery. She is the PI of a research program in collaboration with the Oncological Ophthalmology Department of her Institute, to understand how to optimize the treatment of the uveal melanoma from 2015. Her new approach to the problem allows the team to understand not only the best irradiation technique by using gamma rays, but also try how to reduce the late effects and how to predict them by using a simple score.

delvecchio.antonella@hsr.it