



RESEARCH TOPIC MEM17

ARTInGLIO: evaluation of Adaptive Radiation Therapy In GLIOblastoma Curriculum MEM Clinical

Clinical Unit name and address

Radiotherapy and Radiosurgery Department
PET and Nuclear Medicine Department
Humanitas Clinical and Research Hospital – IRCCS - Via Manzoni 56, 20089 Rozzano – Milano.

Laboratory name

Laboratory of Pharmacology and Brain Pathology.
Anatomo-pathology Department.
Humanitas Clinical and Research Hospital-IRCCS
Via Manzoni 56, 20089 Rozzano – Milano.

Clinical Supervisor

Professor Arturo Chiti
arturo.chiti@hunimed.eu

Professor Marta Scorsetti
marta.scorsetti@hunimed.eu

Pre-clinical Supervisor

Professor Matteoli Michela
michela.matteoli@hunimed.eu

Professor Terracciano Luigi Maria
luigi.terracciano@hunimed.eu

Abstract

Adaptive radiation therapy (ART) is a radiation therapy (RT) modality of re-planning radiation tumor target volume based on anatomical variations occurring during irradiation. Aims of the project is to investigate if target volume changes exist during irradiation in glioblastoma (GBM), and to determine the effects of volume-adapted replanning on patient outcome and toxicity. The project includes a translational part investigating possible radioresistance markers on tumor tissue and plasma samples, and an exploratory section of artificial intelligence and radiogenomics analysis. The study is based on a first observational prospective phase in which a Magnetic Resonance exam (MRI) will be make before starting RT (simulation), every 10 fractions of the 30 planned in standart GBM treatment, and a [11C]-methionine PET will be make at diagnosis, at simulation, and at the end of RT. Based on the results of this first phase, a second phase will be plan to applicate ART on standard GBM irradiation.

Main technical approaches

- Radiation therapy on newly diagnosed glioblastoma patients (IMRT-VMAT).
- Radiological imaging: magnetic resonance imaging, [11C]-methionine-PET.
- Artificial intelligence/Radiomic analysis.
- Research of radioresistance markers with histopatological and molecular analysis on tissue and plasma samples.

Scientific references

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Type of contract

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