

Research Project

Name of Institution and department:

Erasmus MC

Link to website: [Erasmus MC: Patient care](#)

City and Country of Institution: Rotterdam, The Netherlands

RESEARCH GROUP

Brief description of the research group and of its mission:

The Abdominal Radiology Research Group at Erasmus MC, Rotterdam, is actively involved in translational and clinical imaging research with a particular focus on liver tumors, hepatocellular carcinoma (HCC), interventional oncology, and quantitative imaging biomarkers. The group combines advanced imaging techniques, image post-processing, and clinical outcome analysis to improve diagnosis, treatment selection, and prognostication in patients with liver cancer.

Current research activities include HCC surveillance, imaging-based response assessment, quantitative imaging biomarkers, artificial intelligence applications, radiomics, and outcome prediction following locoregional therapies. The group collaborates closely with hepatologists, surgeons, interventional radiologists, oncologists, and data scientists within a multidisciplinary liver tumor program. The mission of the group is to advance precision medicine in liver cancer by developing and validating imaging biomarkers that can support clinical decision-making and improve patient outcomes.

TITLE OF PROPOSED RESEARCH PROJECT

Quantitative CT Imaging Biomarkers for Prediction of Treatment Response after Transarterial Radioembolization (TARE) in Hepatocellular Carcinoma: A Cohort Study

OBJECTIVES

- To investigate quantitative CT-derived imaging biomarkers associated with treatment response after TARE in patients with hepatocellular carcinoma.
- To evaluate whether baseline tumor iodine concentration, tumor volume, and derived quantitative imaging metrics differ between good and poor responders to TARE.
- To explore the potential role of quantitative imaging biomarkers for treatment stratification and outcome prediction in patients undergoing locoregional therapy for HCC.

APPLICANT'S DUTIES

- Review relevant literature on hepatocellular carcinoma, transarterial radioembolization, and quantitative imaging biomarkers.
- Participate in the selection and verification of a study cohort from an existing institutional TARE database maintained by the research group.
- Perform quantitative image analysis of baseline CT examinations using dedicated post-processing software (IntelliSpace).
- Extract and record imaging biomarkers, including tumor iodine concentration and volumetric measurements.

- Assist in data management, statistical analyses, interpretation of results, and preparation of a scientific report or presentation.

APPLICANT'S BENEFITS

- Participation on scientific outcomes of the project i.e. presentations to congresses or publications of papers
 - Hands-on experience in quantitative CT image analysis and advanced imaging post-processing techniques.
 - Exposure to clinical research methodology, database management, and statistical analysis in oncologic imaging research.
 - Integration into a multidisciplinary liver tumour research team at Erasmus MC, including interaction with radiologists, interventional radiologists, hepatologists and researchers.
 - Development of scientific writing and presentation skills within an internationally recognized academic medical centre.
- **Project Leader:** Asst. Prof Roy Dwarkasing MD, PhD (Radiologist, Abdominal Imaging)
 - **Members:** Dr. Kay Pieterman (Interventional Radiologist); Assoc. Prof. Daniel Bos (Clinical Epidemiologist and Biostatistician)