

Proposta di studio:

Validazione Multi-centrica di un modello predittivo di risposta tumorale basato su MRI diagnostica pre-trattamento nel carcinoma squamocellulare dell'ano (ASCC)

STUDY RATIONALE

- Local failures remain the main pattern of relapse in ASCC
- Controversies in optimal radiotherapy schedule
- Dose-escalation:
 - Lack of evidence in terms of locoregional control
 - More Strong evidence of an increase in acute and late toxicity
- Classically (RTOG 9811) boost up to 59.4Gy in case of «high stage or residual disease after 45Gy»
- Ongoing studies (es. ACT V pilot-ph2 and ph3 clinical trial) will test dose escalation based on tumor stage.

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STUDY OBJECTIVES

- DIAGNOSTIC MRI exploited to identify imaging parameters predictive of tumor response/local failure ab-initio
- parameters usefull to identify candidates for future dose-esclation trial design (not simply tumor stage)

Anal squamous cell carcinoma: Impact of radiochemotherapy evolution over years and an explorative analysis of MRI prediction of tumor response in a mono-institutional series of 131 patients

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METHODS (MONO INSTITUTIONAL SERIES)

- T2 pre-treatment MRI sequences were collected (31/131 pts available)
- GTV (primary tumor) was re-contoured, images resampled
- Radiomic features of GTV were extracted with the goal of fitting radiomic features to local recurrence.
- Principal Components Analysis (PCA) -> support vector machine (SVM) -> ROC curve (best fitting results)
- Feature extraction and data analysis: Python™

HIGHER RELAPSE RATE IN:

- **LOW SIGNAL INTENSITY TARGETS** (more hypoxic tumors?)
- **HIGHER GLSZM'S LAHGLE TARGETS** (tumor etherogeneity)
 - **SMALL GTV_s**

METHODS (MULTI INSTITUTIONAL VALIDATION)

- Anonimized T2w diagnostic pre-treatment MRI sequences, ADC map, optional DWI (high b values, B800-B1200); to be sended at a specific web site after anonimization
- Small database (focused on endpoint, no acute-late toxicity)
- GTV (primary tumor) re-contoured, images resampled
- Radiomic features of GTV extracted with the goal of fitting radiomic features to local recurrence.
- SMALL SAMPLE: Principal Component Analysis (PCA) -> support vector machine (SVM) -> ROC curve (best fitting results)
- HIGHER SAMPLE: other methods to be evaluated in relationship to number of cases

STUDY TIMELINE PROPOSAL (optimistic)

- March 2023: AIRO endorsement, manifestation of interest, ethical commette submission -> DB sending
- Spetember 2023: deadline for data expedition to our center (MR +Database)
- December 2023: end of data analysis and first results
- mid 2024: presentation of results to national GI group and (hopefully) paper submission
- based on results: discussion of hypotesis for prospective personalized medicine national study

JOIN US!

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