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Re-irradiation experience: Is it underused in XXI century?

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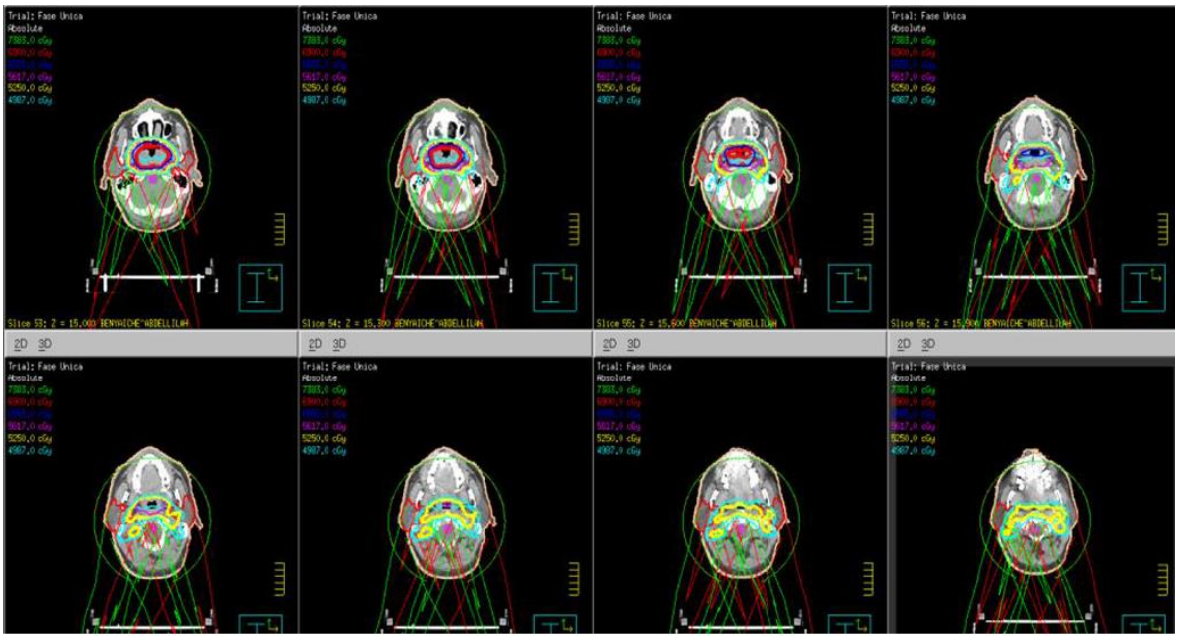
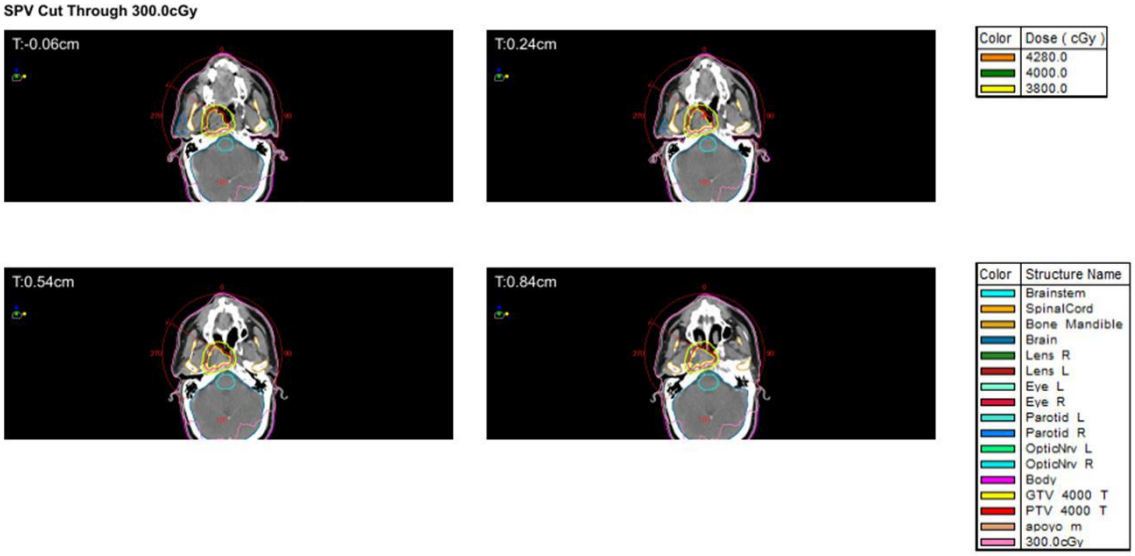
Purpose/Objective:
Cancer patients live longer thanks to earlier diagnosis and better cancer treatments. Therefore, reirradiation could be a useful option for patients with locally recurrent cancer with radical or palliative intent.
Despite technological advances, only seven clinical trials are exploring reirradiation (2015-2023) with a median of 60 patients. Severe toxicity is the primary concern of radiation oncologists when offering reirradiation to patients in different settings.
Our objective is to analyze the patients re-irradiated during 2024, the patologies, the technique and fractionation used, the survival, and toxicity of our series.

Material/Methods:
Between January- October 2024 we have treated 1724 patients in four GenesisCare Spain centers. We have reirradiated 43 patients (2,49%), with different tumor primary pathologies. Our series mean age was 70.16 years (26-98 years). All patients have been treated with LINAC, CyberKnife S7, or RM LINAC. Patients treated with LINAC could be reirradiated with Cyberknife or RMLINAC later (Figure 1 and 2)





Results:
The three main reirradiated pathologies have been: head and neck (34.88%), brain (13.95%) and prostate (9.30%).
The techniques used have been LINAC (69.77%), RMLINAC (18.60%), Cyberknife S7 (9.30%), and electrons (2.32%) The fractionation has been: hypofractionation (41.86%), normofractionation (39.53%) and hyperfractionation (18.60%, all of them head and neck). The intention of treatment has been radical for 90.7%.
The most important toxicities in our series have been head and neck symptoms (46.51%), skin problems (16.28%) and urinary symptoms (11.63%). All of them CTCAE v.5. grade I – II. The main time between for reirradiation prescription has been 48.72 months (3 – 180 months).
65.12% of our patients are alive one year after.

Conclusion: Multi-institutional collaboration is encouraged to complete sufficiently large trials instead of treating patients isolated. We have only irradiated 2.49% patients Technological improvements (Cyberknife and RMLinac) and ultrahipofractionation could improve results regarding efficacy and toxicity. These devices have been incorporated in GenesisCare Spain last year. Radiation oncologists should be confident about their skills in treating and managing the side effects of this type of patient to avoid the underuse of this treatment option.

Keywords: Reirradiation, RMLinac, Cyberknife

References:
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Enhancing Radiotherapy Efficiency and Patient Experience Using a Metro Map Framework

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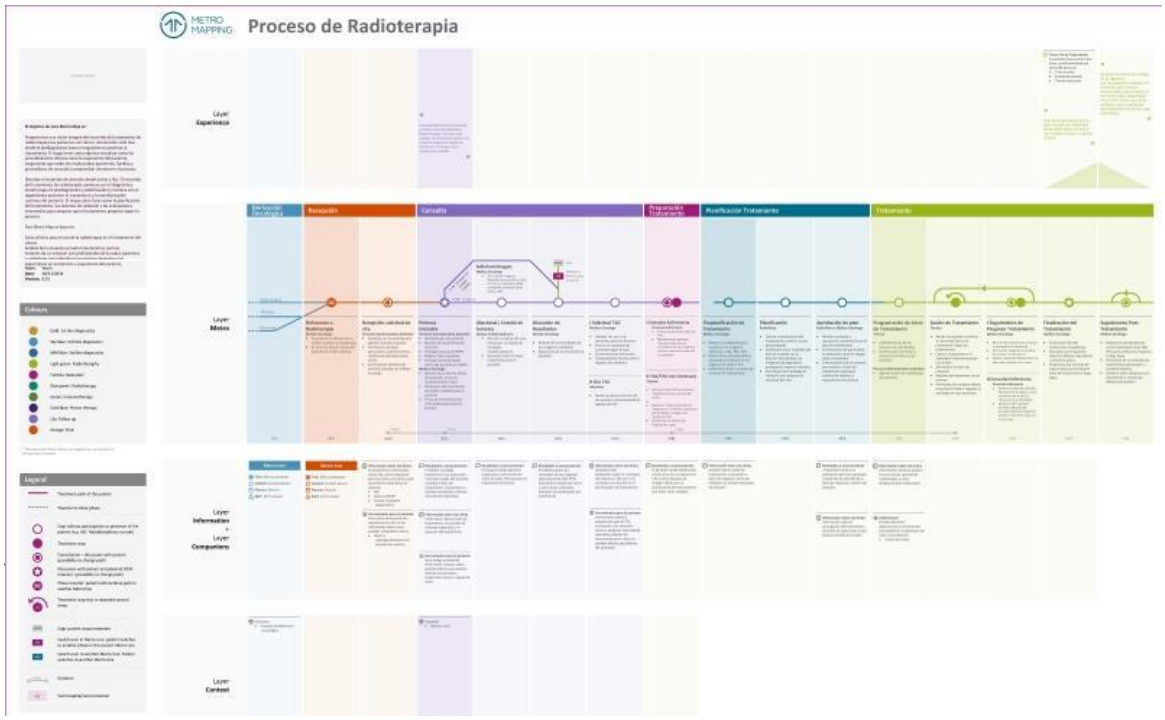
Purpose/Objective:
The radiotherapy process involves multiple interdependent stages, often leading to delays and suboptimal patient experiences. This study aimed to develop a metro map framework to optimize workflow efficiency, improve coordination among clinical teams, and enhance patient satisfaction through a clear, visual representation of the treatment process.

Material/Methods:
A mixed-methods approach was used to map the radiotherapy workflow. Structured interviews were conducted with 10 healthcare professionals, including oncologists, medical physicists, nurses, technicians, and administrative staff, to identify bottlenecks and inefficiencies. A metro map was created using Microsoft Visio to depict the radiotherapy journey, incorporating layers for patient experience, clinical milestones, and support mechanisms.

Results:



Key triggers for optimization were identified, including approval of the treatment plan by medical physicists and oncologists, evaluation of diagnostic imaging, and structured follow-up care. Proposed metrics for evaluation included reduced waiting times, improved patient satisfaction (measured through post-treatment surveys), and alignment with clinical quality metrics such as the EORTC QLQ-C30 for patient-reported outcomes.

Conclusion:
The metro map provides a comprehensive visualization of the radiotherapy process, enabling healthcare teams to identify and address inefficiencies while improving communication with patients. Initial findings suggest its potential to enhance workflow efficiency, reduce waiting times, and improve patient satisfaction. Future work will focus on implementing the framework and evaluating its impact on clinical outcomes and value-based healthcare metrics.

Keywords: Metro Map Framework, patient experience, quality

References:
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Digital Poster

MRI-Guided Stereotactic Radiotherapy for Pancreatic Tumours (SMART): First Report of a Prospective Study in Spain

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Purpose/Objective:
MRI-guided stereotactic radiotherapy (MRgRT) enables the delivery of high radiation doses while accurately identifying organs at risk (OAR) due to its high soft tissue contrast, real-time adaptive therapy, and intrafraction motion control. Recent studies have suggested that dose escalation with MRgRT can be safely achieved, improving local control (LC), and potentially improving overall survival (OS). This study aims to provide the first report on toxicity, LC, and distant progression-free survival (DPFS) at 6 months in a cohort of patients from a prospective MRgRT study conducted in Spain.

Material/Methods:
Registry #5289 is a prospective basket-type study designed to evaluate toxicity in patients treated with a 0.35T MRLINAC.
This analysis includes 30 consecutive patients with inoperable, non-metastatic pancreatic adenocarcinoma treated between June 2023 and July 2024. All patients underwent >3 months of induction chemotherapy, with FOLFIRINOX being the most commonly administered regimen. Daily plan adaptation was performed using the 0.35T MR-LINAC. The prescribed dose required ≥95% of the PTV to receive ≥95% of the dose. If mandatory OAR constraints were not met, coverage of the PTVlow was reduced accordingly. On-table replanning was mandatory when gastrointestinal OAR constraints were exceeded, while online replanning was at the physician's discretion, typically to enhance target coverage or reduce beam-on time. Acute and late gastrointestinal (GI) toxicities were recorded following CTCAE 5.0 guidelines, and LC was assessed using RECIST 1.1 criteia

Results:
The median age was 66 years (range: 43-86 years). ECOG 0 in 97% of patients and 1 in 3%. Most patients (86.67%) had locally advanced disease, and 13.33 % had borderline resectable disease(Table 1). Only one patient underwent surgery following radiotherapy. The median prescribed dose was 44 Gy (range: 40-50 Gy) in five consecutive fractions, with a median

biologically effective dose (BED10) of 100 Gy10. At 6 months, the median LC was 87%, and DPFS was 80% (IC 95% 32.02-92.06); Median follow-up from diagnosis and MgRT was 10 months (range, 3-21 months) and 6.64 months (range 2-14 months), respectively . Acute toxicity was observed in 13.33% of patients with Grade 1 and 12.50% with Grade 2 toxicities. Late toxicity included Grade 1 in 33.33% and Grade 2 in 3.33% of patients. No Grade ≥3 toxicities reported.

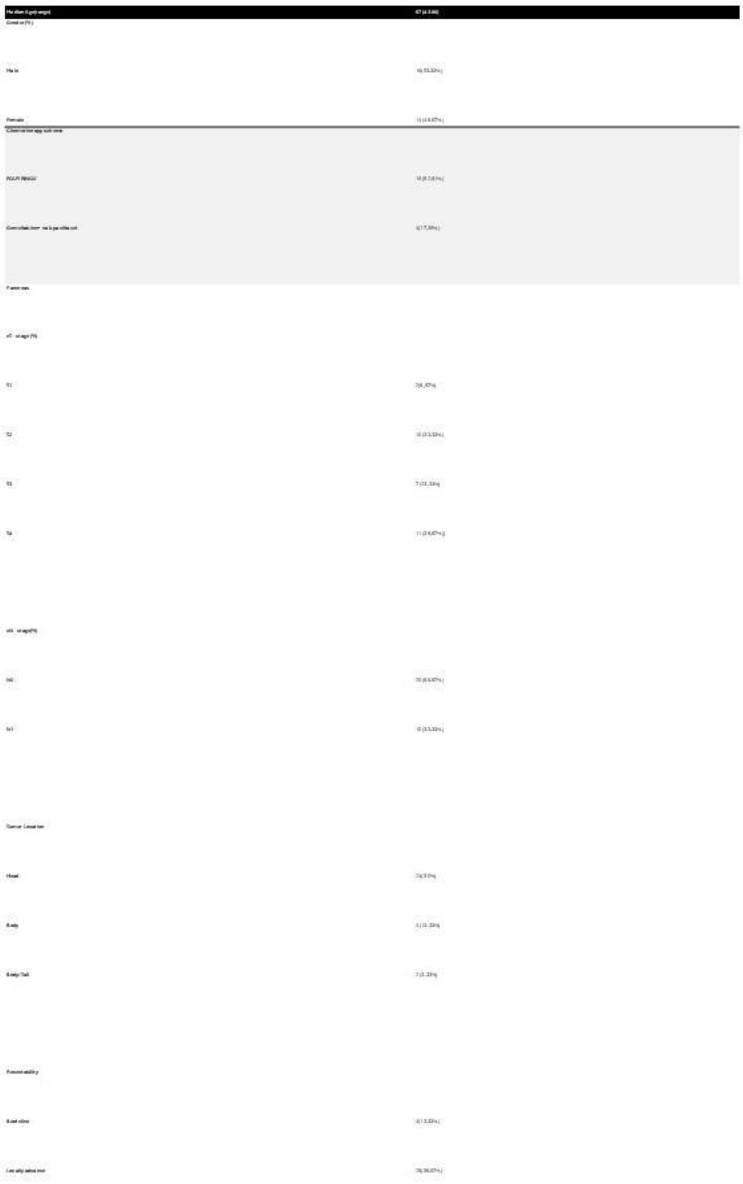

Table 1. Patient Caractheristics

Conclusion:
To our knowledge, this is the first report of MRgRT in pancreatic adenocarcinoma in Spain. Toxicity, LC and DPFS similar to those describe in the literature. No Grade ≥3 toxicities associated with the treatment observed.

Keywords: MgRT, SMART, pancreas

References:
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Digital Poster

MRI-guided radiotherapy in prostate bed in patients with biochemical relapse

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Purpose/Objective:
Stereotactic Body Radiotherapy (SBRT) to the prostate has emerged as a viable radical treatment option. However, limited evidence supports its use in the postoperative setting, where the standard of care remains hypofractionated radiotherapy achieving an EQD2 of approximately 70 Gy. This study reports on the tolerability of SBRT in patients with biochemical relapse criteria, utilizing adaptive radiotherapy.

Material/Methods:
Patients with prostate-specific antigen (PSA) levels >0.2 ng/mL following radical prostatectomy were enrolled in a prospective trial (Protocol No. 5289). Adaptive SBRT was delivered to the prostate bed using a 0.35T MR-LINAC system, administered in five fractions every other day to a total dose of 32.5 Gy (EQD2α/β=1.5 = 74.3 Gy). For patients with macroscopic recurrence, the dose was escalated to 35 Gy (EQD2α/β=1.5 = 85 Gy). Patient demographics, including median PSA levels, were documented. Acute and late toxicities were evaluated using the Common Terminology Criteria for Adverse Events (CTCAE v5.0).

Results:
Between July 2023 and July 2024, 12 patients were enrolled and treated. The median age was 66 years (range: 58–76), and the median follow-up duration was 4.1 months (range: 3–9). No acute or late grade ≥2 gastrointestinal (GI) or genitourinary (GU) toxicities were observed. Grade 1 acute GU (dysuria) and GI (diarrhea) toxicities were reported in 16.6% and 8.3% of patients, respectively, and resolved within three months post-treatment. The median PSA nadir at six months post-treatment was 0.09 ng/mL (range: 0.04–0.25). At the last follow-up, no patient exhibited biochemical failure.

Table 1: Patient characteristics (n=12)

Variable	
Age (years)	66 (58-76)
Preoperative PSA (ng/mL)	4,66 (3.8-6.7)
Pathological T stage	
T1	1
T2	8
T3a	2
T3b	1
Pathological N stage	
N0	10
N1	2
Nx	
Pathological Gleason score	
6	3
7	5
8-10	4
Positive surgical margins at RP	2
Time to first PSA recurrence (months)	57,1
Highest PSA before RT (ng/mL)	0,52 (0,3-1,17)

Conclusion:
These findings suggest that post-prostatectomy SBRT is well-tolerated, with no significant increase in toxicity.
However, longer follow-up and randomized trials comparing this approach with alternative radiotherapy regimens are necessary to confirm its efficacy and safety.

Keywords: SBRT, prostate bed, toxicity

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Digital Poster

Adaptive Radiotherapy for Lung Cancer in clinical practice in Andalucía, Spain: a multicenter survey on implementation, techniques, and challenges

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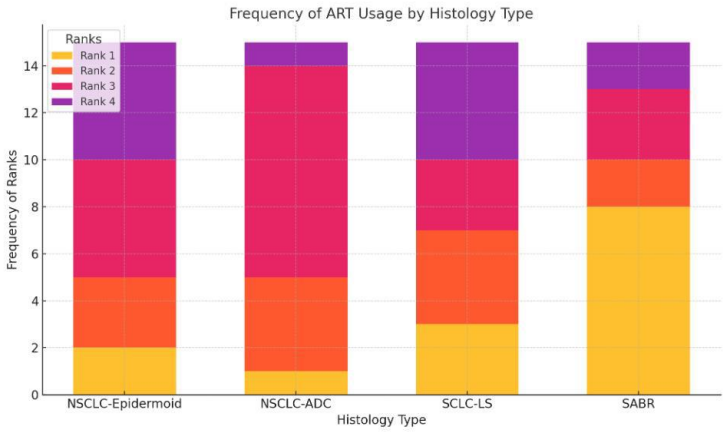
Purpose/Objective:
To analyze the current clinical practice of adaptive radiotherapy in lung cancer (LC-ART) in public and private spanish centers, focusing on implementation, imaging modalities, dosimetric methodologies, and perceived barriers, as well as exploring the evolving role of radiotherapy technologists (RTTs) in online LC-ART.

Material/Methods:
A multicenter survey was conducted across 15 radiotherapy centers (60% public, 40% private) of Andalucía (Spain) to assess the use of LC-ART. The survey included questions on treatment adaptation frequency, imaging modalities, dosimetric strategies, and operational challenges. Responses were analyzed for trends in LC-ART implementation, with a focus on histology-specific usage, imaging-based decisions, and timelines for adaptation. The role of RTTs in ART was explored through additional qualitative questions.

Results:



Graphic 1- A stacked bar chart representing the frequency of ranks for ART usage across different histologies. Each bar corresponds to a histology type, with segments indicating the counts of each rank (1 to 4).

All centers (100%) reported adapting treatment plans based on tumor or patient changes. LC-ART was perceived as essential in specific scenarios by 80% of participants, while 20% advocated for systematic application. For histologyspecific LC-ART, SABR was the most frequently adapted (ranked 1), followed by NSCLC-ADC (rank 3) and SCLC-LS (rank 4). Distribution can be seen in graphic 1. Most centers (93%) conducted LC-ART off-line, with 7% employing both off-line and on-line approaches. Decision-making relied primarily on KV-CBCT (40%), MV-CBCT (33%), and CT (27%). Adapted plans were implemented within 24-48 hours by 60% of centers.
Dosimetry for off-line LC-ART rarely used positioning images (33%), instead, the generation of a new simulation CT is the preferred method (67%). Deformable image registration was employed in 60% of centers for dose accumulation. Barriers to on-line LC-ART included resource demands (73%), while 27% anticipated adopting on-line LC-ART in the near future. RTTs were identified as potential leaders in delivering on-line ART after specific training, with 73% of centers preferring the presence of both medical and physics staff during treatment.

Conclusion:

LC-ART is widely implemented off-line with substantial reliance on advanced imaging and deformable registration. The transition to on-line LC-ART is hindered by staffing challenges but shows potential for integration. Expanding RTT responsibilities with targeted training could optimize resource allocation and enhance ART accessibility.

Keywords: adaptive radiotherapy, lung cancer, Spain

ESTRO 2025

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Digital Poster

Efficiency Analysis of Adaptive MR-Linac Workflow: Time Distribution, Pathology Impact, and Treatment Optimization in Clinical Practice

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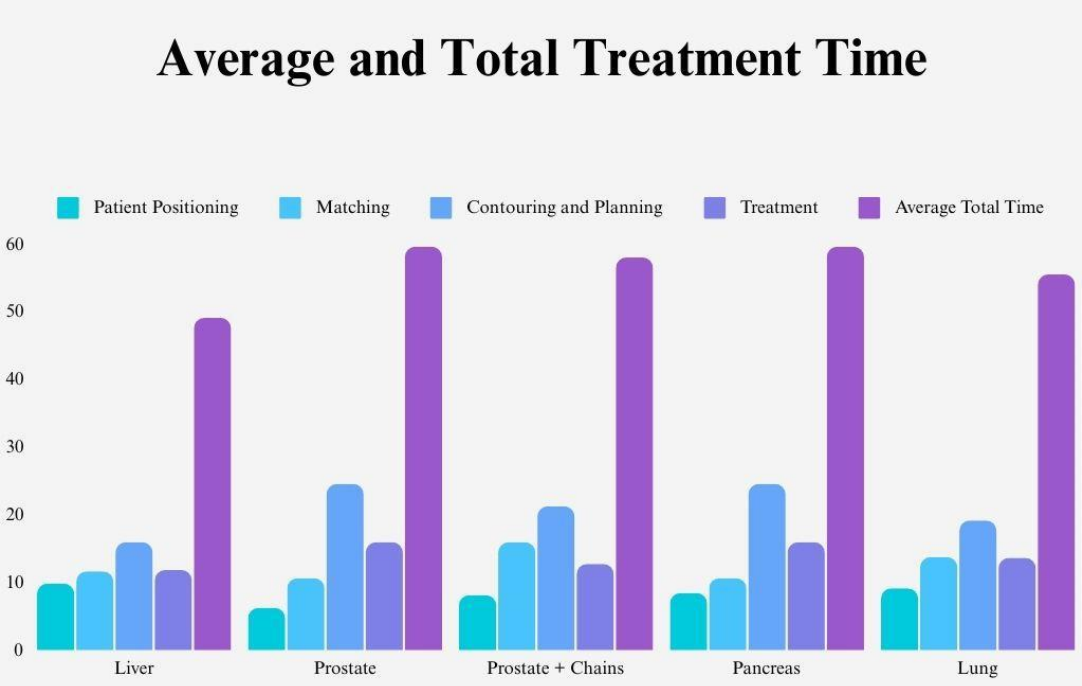
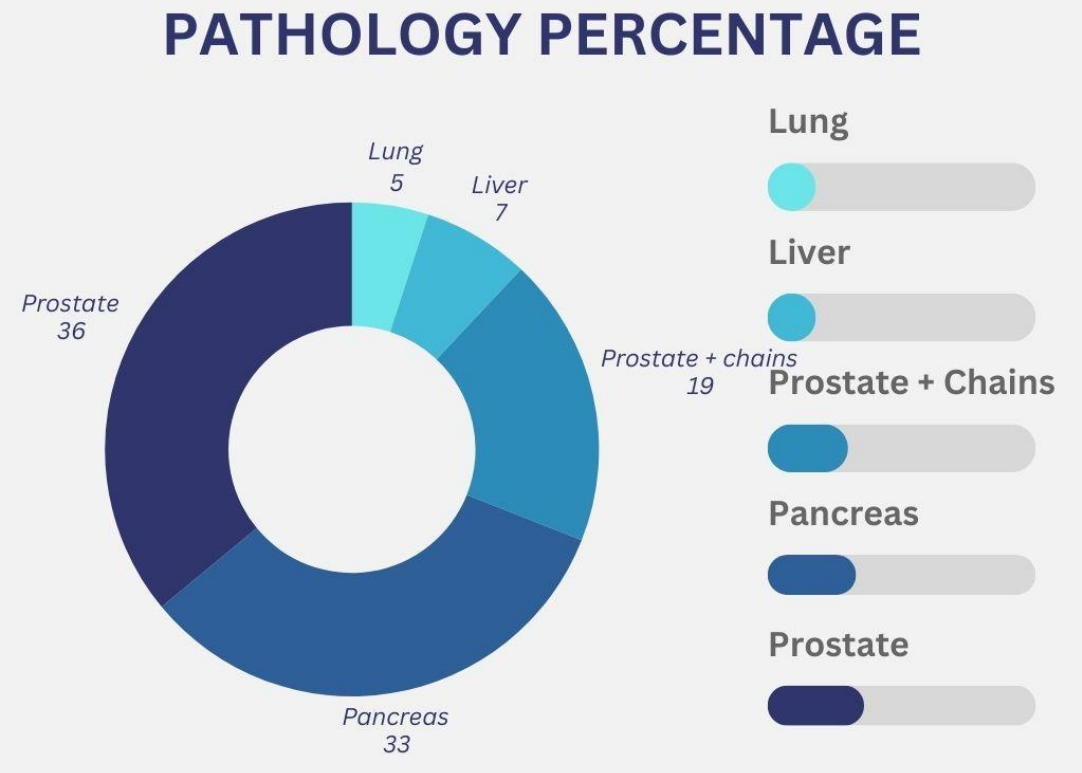
Purpose/Objective:
Magnetic resonance-guided radiotherapy (MRgRT) using the 0.35T MR-Linac (MRIdian) has introduced a significant shift in therapeutic approaches within radiotherapy units. This technological advancement enables the integration of real-time, high-precision imaging to adapt treatments during each session, thereby enhancing treatment accuracy and tolerance. The primary objective of this study is to analyze and quantify the time associated with adaptive MRgRT sessions according to workflow steps and the various pathologies treated, providing a quantitative perspective on the distribution of total treatment time in daily clinical practice.

Material/Methods:
A prospective analysis was conducted on 205 radiotherapy treatment fractions and 81 treatment simulations using the MRIdian system. The adaptive workflow was divided into four critical stages:
1. Placement of antennas,
2. Verification of matching between MR TRUFI simulation and daily MR TRUFI
3. Contouring and planning (contouring of OAR by RTT, contour adjustment by the physician, and selection of the optimal treatment plan)
4. Treatment delivery (plan and margin verification, followed by the time of Beam ON).
Time was individually registered and analyzed.

Results:


Average and Total Treatment Time
Patient Positioning
Matching
Contouring and Planning
Treatment
Average Total Time
60
50
40
30
20
10
0
Liver
Prostate
Prostate + Chains
Pancreas
Lung


PATHOLOGY PERCENTAGE
Lung
5
Liver
7
Prostate
36
Prostate + chains
19
Pancreas
33
Lung
Liver
Prostate + Chains
Pancreas
Prostate

All treatment fractions were online replanned being the primary reason for replanning is that the organs at risk (OARs) exceed the established limits. Regarding the type of treatment, 100% of cases corresponded to Stereotactic Body Radiation Therapy (SBRT). Pathology was a significant factor in the selection of the treatment protocol. **(Figure 1)** A detailed analysis of the average times for the adaptive process revealed durations of 7.5 minutes for patient placement, 12.5 minutes for matching, 19.2 minutes for contouring and planning, and 14.2 minutes for treatment delivery **(Figure 2)**.The average total time per adaptive session was 53.09 minutes, and 24.82 minutes for simulation.

Conclusion:

This study highlights the efficiency of the adaptive workflow in MR-Linac radiotherapy, providing valuable data for optimizing treatment times. Understanding and managing workflow times in adaptive radiotherapy units is essential to optimizing resources, improving operational efficiency, and ensuring the delivery of high-quality treatments in a timely manner. This benefits both the service and the patient experience.

Keywords: MRgRT, schedule, workflow

References:

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Digital Poster

Adaptive radiotherapy in localized prostate cancer: prospective study and results of tolerance

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Purpose/Objective:
External beam radiotherapy is a widely accepted treatment for localized prostate cancer. Recent reports tend to hypofractionation and recently the ultra-hypofractionated radiotherapy using stereotactic body radiotherapy (SBRT), emerging as the preferred approach due to its efficacy, reduced number of sessions, and acceptable tolerance profile. This modality, however, depends heavily on advanced technology and imaging improvements, including reduced treatment margins enabled by MR-guided radiotherapy (MRgRT). This study evaluates the tolerability of SBRT in patients with localized prostate cancer treated using a 0.35T MR-LINAC system.

Material/Methods:
Patients with localized prostate cancer (low-risk, intermediate-risk and high-risk) were enrolled in a prospective trial (Protocol No. 5289). Treatment consisted of adaptive SBRT using MR-LINAC delivering 36.25 Gy (low-risk) or 40 Gy (intermediate and high-risk) in five fractions. Androgen deprivation therapy (ADT) was permitted in indicated cases. Planning target volumes (PTVs) were generated with a 2-mm isotropic expansion. All patients completed the prescribed treatment. Acute and late toxicities were assessed using the Common Terminology Criteria for Adverse Events (CTCAE v5.0).

Results:
A total of 69 patients were enrolled and treated between July 2023 and July 2024. The median age was 75 years (range: 49–86). Risk stratification showed 27.5% low-risk, 52.1% intermediate-risk, and 20.2% high-risk patients. The median follow-up was 6.4 months. 54.3% of patients received ADT. The median prostate volume was 42 cc (range: 16–109 cc). Dosimetric analysis revealed median urethral doses of 39.1 Gy and rectal doses of 16.5 Gy.
Genitourinary (GU) toxicities (Grade 1–2) were reported in 15% of patients at three months, 3% at six months, and 0% at nine months. Gastrointestinal (GI) toxicities (Grade 1-2) were observed in 1% of patients at three months, 2% at six months, and 0% at nine months. The U Mann-Whitney test was applied to assess correlations between toxicity and variables such as age, prostate volume, dose, and prior urological procedures; no significant associations were found. No serious adverse events (Grade ≥3) or treatment-related deaths were observed during the study period.

Table 1: Patients' clinicopathological characteristics

	N=69
Age (years)	75 (49-86)
Diagnosis PSA (ng/mL)	6,69 (1,15-20,5)
Nadir PSA (ng/mL)	1 (0-4,1)
Clinical TNM stage	
T1-T2a	34
T2b-T2c	28
T3-T4	7
Gleason score	
≤6	21
7	38
≥8	10
Clinical Risk Group	
Low	19
Intermediate	36
High	14
Previous TURP	
Yes	19
No	50
Use of ADT	
Yes	50
No	19
Duration of ADT	
STADT	36
LTADT	14

TURP: transurethral resection of the prostate. ADT: androgen deprivation therapy. STADT: short-term ADT. LTADR: long-term ADT.

Conclusion:

This prospective analysis demonstrates that CTCAE toxicities associated with adaptive radiotherapy were minimal and consistent with existing literature. SBRT with MRgRT proved to be safe, with low toxicity rates. Further follow-up is needed to evaluate biochemical outcomes.

Keywords: Prostate cancer, Adaptive radiotherapy, SBRT

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Digital Poster

Real-World Experience in Managing Hormone-Sensitive Oligometastatic Prostate Cancer: Insights from a Spanish Multicenter Study

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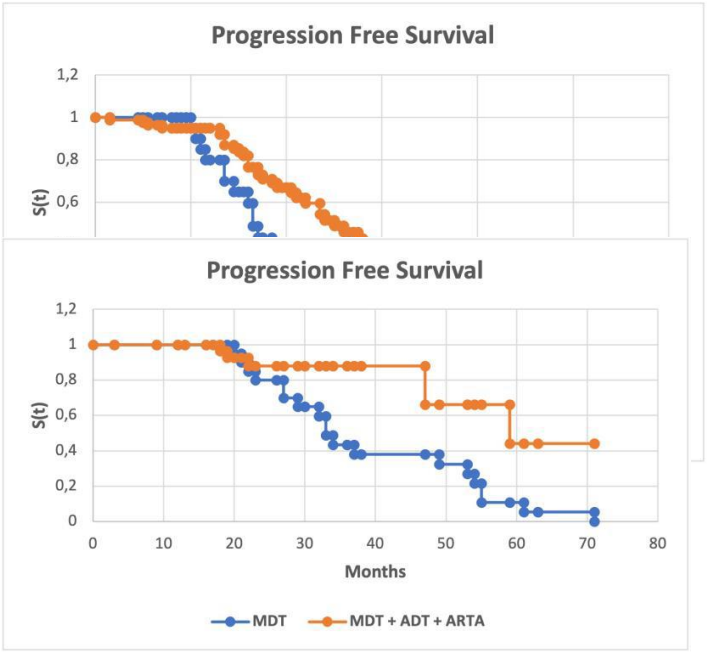
Purpose/Objective:
The initial management in patients with oligometastatic hormone-sensitive prostate cancer (oHSPC) began with the exclusive use of ADT, followed by metastasis-directed therapy (MDT), and most recently with the development of new therapies against the androgen receptor (ARTA). However, there are unresolved issues such as the specific benefit that MDT would provide in patients with ARTA, the sequencing of different treatments, and in which specific patient profile it would be the best option. With this study we aim to collect real-world data on the management of the disease in this scenario.

Material/Methods:
Retrospective multicenter study of oHSPC diagnosed by conventional imaging and/or PET. A database from five Spanish centers was analyzed until May 31, 2024. Statistical analysis was performed using Kaplan-Meier and univariate Cox proportional hazard regression models to identify the variables considered statistically significant on PFS and the best combination treatment.

Results:
158 patients were enrolled. Median of age at the diagnosis of oHSPC was 70 years (range, 50-87). 32 pts (20,2%) were *De novo* and 126 (79,8%) *Per progression*. 145 pts had less than 3 metastases and 13 with 4-5 metastasis.
Median PSA of oHSPC pts was 103 ng/ml (range, 4-3084). PET-Choline was performed in 77 pts (48,7%) and PETPSMA in 44 (27,8%). 10 pts underwent to both types of PET. With a median follow up of 30 months (range, 3-114), the only variables found that impacted PFS were: age at diagnosis of oHSPC (p= 0.01), biopsy ISUP < 2 (p = 0.006) and the use of ADT (p = 0.005). MDT was performed in 138 pts (87%), ADT in 136 (86%) and ARTA in 42 (26,5%). MDT + ADT combination showed a significant reduction in the risk of progression compared to MDT (HR: 0.45, 95% CI: 0,25-0,8, p = 0,0079 (figure 1). Furthermore, the intensification treatment with MDT + ADT + ARTA compared to MDT showed a 71% reduction in the risk of progression (HR: 0.29, 95% CI: 0,10-0,79, p = 0,0079) (figure 2). Primary tumor RT in *De Novo* pts proved a survival benefit (p = 0.03).



Conclusion:

This study provides valuable evidence on the management of oHSPC, demonstrating the benefits of combination therapies and highlighting the importance of personalized treatment approaches. The findings support the integration of MDT with ADT and ARTA. Future studies should focus on optimizing treatment sequences, identifying biomarkers for treatment response, and investigating long-term outcomes of these combination approaches

Keywords: Prostate, Oligometastasis, Hormone-Sensitive

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Assessment of the long-term efficacy and side effects of moderate hypofractionated external radiotherapy in localized prostate cancer

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Purpose/Objective:
The aim of this work is to determine biochemical recurrence, local relapse, nodal failure, distant metastasis, overall survival and cancer-specific survival. We also evaluate urinary, rectal and gastrointestinal toxicity in localized prostate cancer (LPC).

Material/Methods:
We included all patients with LPC treated with the Kupelian scheme (70 Gy in 28 fractions) in our centre from 2011 to 2019, using IMRT/VMAT and IGRT. Recorded parameters included age, urological surgeries, initial-PSA, diagnostic method, histology, Gleason score, percentage of affected cylinders, TNM stage, risk group, prostate volume, IPSS, radiotherapy technique and irradiated volumes, acute and chronic urinary/rectal/intestinal toxicity according to CTCAE 5.0 scale, PSA-nadir, biochemical recurrence and local/nodal relapse and distant metastasis. We extracted absolute frequencies, mean values, CI-95%, Log-Rank test and Kaplan-Meier survival analysis.

Results:
We included 613 patients. The mean age was 71±7 years. Tumors were classified as low-risk (25.45%), intermediaterisk (24.96%), high-risk (44.21%) and tumors with regional lymph nodes (5,38%). No G3-G4 acute toxicities were identified. G2 urinary/rectal/intestinal acute toxicities were 4.00%, 1.63% and 0.33%, respectively. No G4 chronic toxicities were identified. G3 urinary/rectal/intestinal chronic toxicities were 2.61%, 3.09% and 0.16%, respectively.
The median follow-up was 7.35 years. Biochemical recurrence was 2.56% (low-risk), 3.92% (intermediate-risk), 7.01% (high-risk) and 27.27% (regional lymph nodes). Overall survival was similar between groups. Cancer-specific survival was lower in the group of high-risk and regional lymph nodes. All recurrences were higher in the group with regional lymph nodes.

Conclusion:
Moderate hypofractionated radiotherapy for localized prostate cancer represents a therapeutic option with excellent long-term results and minimal toxicities. Despite our study including a higher percentage of high-risk prostate cancer patients, the long-term results surpassed those of the Kupelian study, showing lower rates of biochemical recurrence. These results are likely attributed to the use of more advanced radiotherapy techniques such as image-guided IMRT/VMAT.

Keywords: Prostate cancer, hipofractionation, IMRT

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Integrating ADC and PSA as predictive factors of treatment response to androgen deprivation therapy and radiotherapy in prostate cancer

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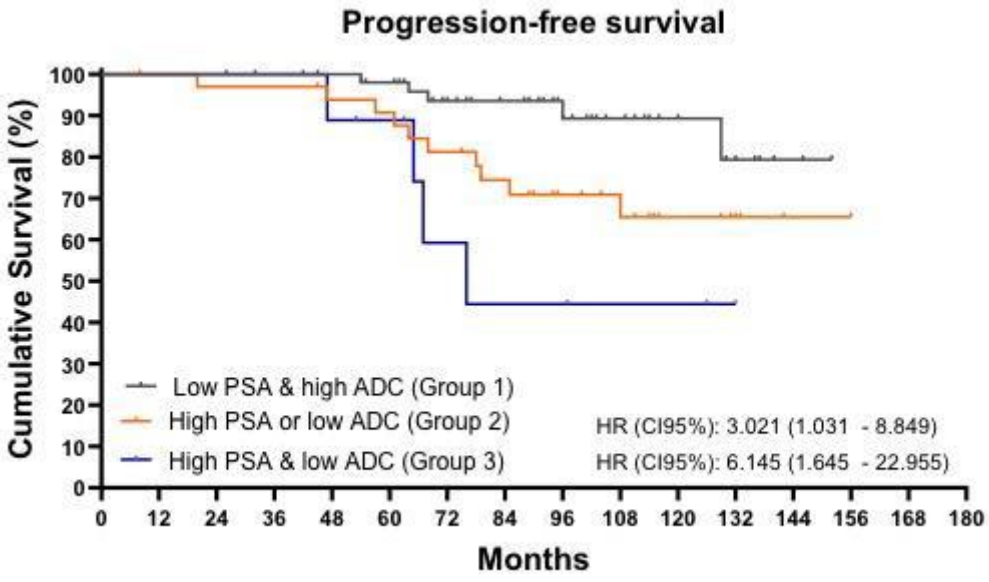
Purpose/Objective:
Previous studies have demonstrated that the Apparent Diffusion Coefficient(ADC) value obtained through multiparametric magnetic resonance imaging(mpMRI) at 6 months post-radiotherapy is a predictive factor for response to radiotherapy(RT) and androgen deprivation therapy(ADT)1 2 Additionally, PSA levels at 6 months post-RT has also been reported as a predictive factor of response3. This study aims to evaluate the combined predictive value of ADC and PSA in assessing treatment response in prostate cancer.

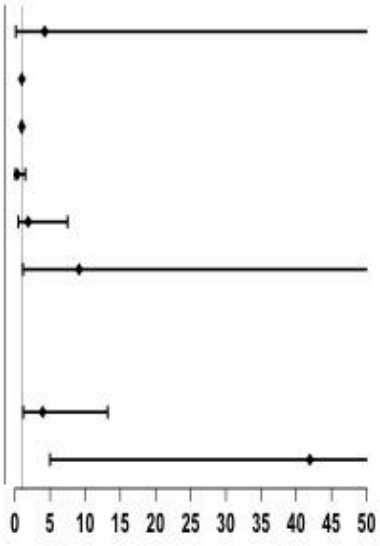
Material/Methods:
All prostate cancer patients classified as high-risk or very high-risk and unfavorable intermediate-risk according to NCCN-criteria, who received ADT and RT between 2008-2019, underwent a mpMRI and PSA test at 6 months after RT were included.
Patients were stratified into three groups based on established thresholds for PSA(0.1 ng/ml) levels and ADC(1.24×10^{-3} mm^2/s) values:
• Group 1: low post-RT PSA and high post-RT ADC.
• Group 2: either high post-RT PSA (with high ADC) or low post-RT ADC(with low PSA).
• Group 3: high post-RT PSA and low post-RT ADC.
10-year progression-free survival(PFS) among these subgroups was analyzed using Kaplan-Meier curves. In addition to a multivariate analysis using Cox proportional-hazards regression models incorporated predictive factors related to PFS.

Results:
98 consecutive patients were retrospectively analyzed, 73(74.5%) were high-risk. Median initial PSA was 10.15ng/ml[6.93-21] and mean initial ADC was $0.81\pm0.18\times10^{-3}$ mm^2/s. After a mean follow-up of 95.36 months(SD: 30.54), 19(19.39%) patients progressed. 10-y-PFS, metastasis-free survival and overall survival were 75.6%, 87% and 89.5% respectively. Progression rates for groups 1,2 and 3 were 9.09%(5/55), 29.41%(10/34) and 44.44%(4/9) respectively. 10y-PFS were 83%(Group 1), 70%(Group 2), and 44%(Group 3). Multivariate analysis confirmed a higher

risk of progression in patients from Group 2 [HR 3.958, 95%CI(1.188 - 13.191), p=0.025], and Group 3 [HR: 41.945, 95%CI(5.00-351.761), p<0.001] compared to patients in Group 1, adjusted for covariates age, T stage, risk group, and initial PSA and ADC.



ADJUSTED MULTIPLE REGRESSION



	HR (95% CI)	p-valor
Initial ADC	4.238 (0.128 - 140.743)	0.419
Initial PSA	0.996 (0.985 - 1.008)	0.517
Age	0.981 (0.918 - 1.049)	0.571
Gleasson (ref: ≤ 7)	0.353 (0.088 - 1.418)	0.142
T Stage (ref: T1-T2)	1.891 (0.478 - 7.485)	0.365
Risk Groups, NCCN criteria: (ref: intermedial)	**9.122 (1.153 - 72.161)**	**0.036**
ADC & PSA post-RT		
ref: Low PSA & high ADC (Group 1)		
High PSA or low ADC (Group 2)	**3.958 (1.188 - 13.191)**	**0.025**
High PSA & low ADC (Group 3)	**41.945 (5.002 - 351.761)**	**< 0.001**

Conclusion:

The integration of ADC values and PSA levels at 6 months post-RT provides a valuable predictive tool for assessing treatment response with RT and ADT in prostate cancer. Patients

with high PSA and low ADC post-RT showed the poorest PFS and higher rates of treatment failure. These findings highlight the importance of integrating imaging and biochemical markers into clinical practice to select patients at higher risk of relapse who could benefit from a closer follow-up and treatment intensification.

Keywords: Apparent Diffusion Coefficient, PSA, prostate

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