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= 0.055). No significant difference was seen between FOLFOX and FOLFIRI ($p = 0.357$), though FOLFOX plus EGFR inhibition yielded the best results.

Conclusion:

SBRT provides excellent local control of liver metastases, particularly in first-line patients with RAS wild-type tumors and those receiving EGFR-targeted agents. RAS mutations were associated with lower CR rates, suggesting potential intrinsic radioresistance. These findings highlight the importance of molecular profiling, treatment sequencing, and strategic integration of SBRT with systemic therapy to maximize local efficacy in metastatic colorectal cancer.

Keywords: SBRT Liver Metastases, RAS-status, Systemic Therapy

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Identifying high-risk patients after neoadjuvant chemoradiotherapy for rectal cancer: A DFI multivariate prognostic model

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Purpose/Objective:

The standard treatment for locally advanced rectal cancer (LARC) includes neoadjuvant chemoradiotherapy (nCRT), followed by total mesorectal excision (TME) or a watch-and-wait (W&W) approach in selected cases. Identifying reliable prognostic markers is essential for optimizing treatment strategies and personalizing patient management. This study aimed to determine prognostic parameters associated with the disease-free interval (DFI) in LARC patients treated with volumetric modulated arc therapy (VMAT) using a

simultaneous integrated boost (SIB) technique.

Material/Methods:

This study included 82 patients with LARC treated between June 2020 and April 2022. Radiotherapy was delivered with 45 Gy (1.8 Gy per fraction) to the mesorectum and regional lymphatics, with a SIB to 54 Gy to the primary tumor (2.16 Gy per fraction). Concomitant chemotherapy with 5-fluorouracil and leucovorin was administered during weeks 1 and 5 of radiotherapy. Treatment response was evaluated eight weeks after completion of nCRT using pelvic magnetic resonance imaging (MRI), rigid proctoscopy, and digital rectal examination. Patients achieving a clinical complete response (cCR) with distally located tumors were managed with a W&W approach, while others proceeded to surgery 8–14 weeks post-nCRT. DFI was calculated from the date of surgery or, for W&W patients without relapse, from the date of control MRI to the occurrence of progression or last follow-up. Both pretreatment and post-nCRT parameters were analyzed.

Results:

The majority of patients had distally located tumors (80.5%) and stage III disease (96.4%). Extramural vascular invasion (EMVI) on baseline MRI was present in one-third of patients. Of the 82 patients, 66 (80.5%) underwent surgery and 16 (19.5%) were managed with W&W. A favorable response, defined as cCR or Mandard tumor regression grade (TRG) 1–2, was observed in 40 patients (48.8%). Local regrowth occurred in seven W&W patients, all successfully salvaged surgically. The median DFI was 33.5 months (range 1–54), with a 3-year DFI rate of 74.8%. Multivariate Cox regression identified mucinous tumor component in the initial biopsy, EMVI positivity on baseline MRI, and poor MRI-based tumor regression (mrTRG 4) after nCRT as independent predictors of shorter DFI.

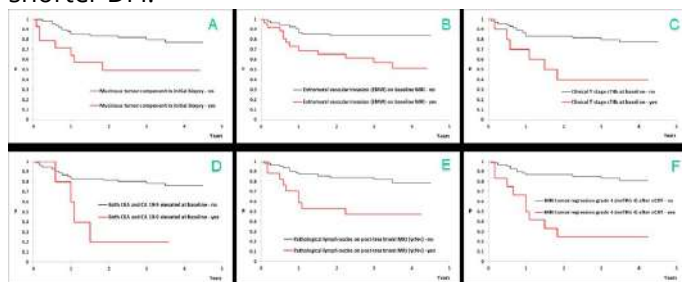


Figure 1. Kaplan-Meier curves for DFI. Table 1. Univariate and Multivariate Cox Regression Analyses of Prognostic Factors for DFI.

Characteristic	Cox Analysis			
	Univariate		Multivariate	
	HR (95% CI)	p Value	HR (95% CI)	p Value
<i>Presence of pain at presentation</i>				
yes vs. no	2.7 (1.2-6.5)	p=0.028	-	-
<i>Mucinous tumor component in initial biopsy</i>				
yes vs. no	3.1 (1.2-7.6)	p=0.026	3.1 (1.1-8.8)	p<0.001
<i>Stenotic tumor morphology on MRI</i>				
yes vs. no	2.4 (1.01-5.7)	p=0.048	-	-
<i>Extramural vascular invasion (EMVI) on baseline MRI</i>				
yes vs. no	3.2 (1.4-7.7)	p=0.008	4.1 (1.6-10.7)	p<0.001
<i>Clinical T stage cT4b at baseline</i>				
yes vs. no	3.6 (1.4-9.4)	p=0.017	-	p=0.3
<i>Both CEA and CA 19-9 elevated at baseline</i>				
yes vs. no	4.5 (1.5-13.6)	p=0.022	-	p=0.6
<i>Pathological lymph nodes on post-treatment MRI</i>				
(ycN+)				
yes vs. no	3.5 (1.5-8.3)	p=0.008	-	p=0.752
<i>Circumferential resection margin threatened/involved on post-treatment MRI</i>				
yes vs. no	4.7 (1.7-12.8)	p=0.01	-	-
<i>Clinical T stage ycT4b on post-treatment MRI</i>				
yes vs. no	8.8 (2.9-27.3)	p=0.002	-	-
<i>MRI tumor regression grade 4 (mrTRG 4) after nCRT</i>				
yes vs. no	6.3 (2.6-15.1)	p=0.0002	4.3 (1.7-10.6)	p<0.001

Conclusion:

Integration of baseline pathological characteristics, initial MRI features, and MRI-based post-treatment response parameters enhances prognostic stratification in LARC. These findings support personalized treatment decision-making, particularly for high-risk patients who may benefit from therapeutic intensification beyond standard nCRT.

References:

1. Marinković M et al. Performance and Dimensionality of Pretreatment MRI Radiomics in Rectal Carcinoma Chemoradiotherapy Prediction. J. Clin. Med. 2024; 13, 421.2. Marinković M et al. Exploring novel genetic and hematological predictors of response to neoadjuvant chemoradiotherapy in locally advanced rectal cancer. Front. Genet. 2023; 14:1245594. Acknowledgments: This study was funded by the Horizon Europe STEPUPRIORS Project (HORIZON-WIDERA-2021-ACCESS-03, European Commission, Agreement No. 101079217) and the Ministry of Science, Technological Development and Innovation of the Republic of Serbia (Agreement No. 451-03-136/2025-03/200043). This study is based upon work from COST Action CA23111; www.cost.eu.

Keywords: LARC, nCRT, DFI, prognostic biomarkers

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Neoadjuvant Radiotherapy in Rectosigmoid Junction Cancer: Comparison with Mid-Low Rectal Tumors

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Purpose/Objective:

The role of preoperative radiotherapy in rectosigmoid junction tumors is controversial, as these tumors can be managed either as rectal or colon cancers. To determine whether preoperative radiotherapy provides benefit in these tumors, we analyzed a series of patients with rectosigmoid junction tumors treated with rectal cancer radio-chemotherapy protocols and compared the outcomes with another series of patients with mid- and low-rectal cancer treated with similar protocols during the same time period.

Material/Methods:

We conducted a single-center retrospective study including 92 patients with rectal cancer treated with neoadjuvant radio-chemotherapy followed by surgery. Patients were classified into two groups according to tumor location, using the peritoneal reflection as the anatomical landmark: rectosigmoid junction tumors (above the reflection) and mid-low rectal tumors (below the reflection). Demographic and clinical variables were collected, including clinical and pathological stage, chemotherapy regimen, local and distant recurrences, pathological complete response (pCR) rate, and overall survival (OS). Toxicities ≥G2 (hematologic, gastrointestinal, urinary, and cutaneous) were also recorded. Median follow-up was 63 months. A comparative analysis between the two groups was performed.

Results:

Of the 92 patients, 45 had rectosigmoid junction tumors and 47 had mid-low rectal tumors, with median ages of 68 and 65 years, respectively. Regarding chemotherapy regimen, in rectosigmoid junction tumors, 58 % received conventional chemotherapy, 31 % received total neoadjuvant therapy (TNT), and 11 % did not receive systemic treatment; in mid-low rectal tumors, the corresponding percentages were 79 %, 11 %, and 11 %, respectively. Local recurrences occurred in 2.2 % and 4.3 %, and distant metastases in 8.9 % and 31.9 %. The pCR rate was 26.1 % in rectosigmoid junction tumors and 12.8 % in mid-low rectal tumors. Overall survival was 72.8 %, with a median of 63.2 months; by groups, 77.8 % (median 56.8 months) in rectosigmoid junction tumors and 68.1 % (median 67.1 months) in mid-low rectal tumors. Toxicity ≥G2 was observed in 56.5 %,