

42 patients accrued, were analyzed for outcomes by clinical stage into 2 groups (I, II, IIIA vs. IIIB) and compared using log-rank test with significant differences in OS ($p=0.002$); CSS ($p>0.000$); DFS ($p>0.000$); DMFS ($p>0.000$); CFS ($p>0.000$); LRC ($p>0.000$). Patients who received FDT had a significantly better OS ($p=0.004$) and CSS ($p=0.01$).

Conclusions: In our experience clinical stage category of disease has a significant impact in all analyzed outcomes, patients who received FDT had an improvement in OS and CSS. Results for more advanced tumours (IIIB) remain poor, and require strategies to improve outcome. Higher doses or better treatment compliance may be required. We discourage planned treatment gaps.

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POSTER

Preoperative Radio-chemotherapy in Locally Advanced Rectal Cancer – Prognostic Value of Time Interval to Surgery on Cancer Specific Survival

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Background: The last decade, preoperative chemoradiation has been the cornerstone in the intent to improve locoregional control in rectal cancer. Pathologic complete response has been associated to a better prognosis, mostly in terms of decreasing local recurrence. We planned a retrospective analysis of a series of cases treated with preoperative chemoradiation for rectal cancer in our institution. We intend to identify other prognostic factors, such as the interval to surgery, of locoregional control and cancer specific survival.

Methods: 347 patients with the diagnosis of locally advanced rectal cancer were treated preoperatively between 2000 and 2010. The median time to surgery was 57 days. 86% of the patients received a full chemoradiation treatment. Sphincter preservation and abdominoperineal resection were performed in 65% and 35% of the patients respectively. Total mesorectal excision was accomplished in 51% of the patients. 27% were given postoperative chemotherapy. Survival estimates were obtained using Kaplan-Meier curves and Cox proportional Hazard model and logistic regression odds ratio were used in the multivariate analysis.

Results: With a median follow up of 69 months, at 5 years local control, distant recurrence free survival, disease specific survival and overall survival were 92, 75, 80 and 70% respectively. 95 patients (27%) had recurrences through out our follow up, 27 were locoregional recurrences and 84 failed distantly. In the multivariate analysis the most significant preoperative prognostic factor in cancer specific death was an interval to surgery ≥ 50 days (HR 1.8; $p=0.03$). We performed a multivariate analysis to determine which factors influenced pathologic complete response and total mesorectal excision. The most significant factor was an interval to surgery <50 days (OR 2.1; $p<0.00$ and OR 2.2; $p<0.00$ respectively).

Conclusions: Preoperative chemoradiation in locally advanced rectal cancer is an effective treatment, with good locoregional control and an excellent cancer specific survival. The most significant preoperative prognostic factor in cancer specific survival was the time to surgery interval. Efforts must be made not to delay surgery after preoperative radio-chemotherapy.

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POSTER

Prognostic Significance of the Lymph Node Ratio on the Treatment Outcome in Rectal Cancer

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Background: This study evaluated the prognostic impact of the lymph node ratio (LNR, ie, the ratio of positive to dissected lymph nodes) on recurrence and survival in rectal cancer patients who received curative intent surgery and postoperative concurrent chemoradiation therapy (CCRT).

Materials and Methods: Between 1995 and 2008, 124 pathologic T3-4 or node positive rectal cancer patients were referred for postoperative CCRT. Radiotherapy was performed, median dose of 50.4 Gy (range, 45–59.4) for 6 weeks to the whole pelvis. Chemotherapy was bolus injection of 5-fluorouracil and leucovorin for the first and last week of radiotherapy ($n=114$, 91.9%) or capecitabine daily administered during radiotherapy ($n=10$, 8.1%). Further adjuvant chemotherapy was done after CCRT. Disease free survival (DFS) and disease specific survival (DSS) rates were estimated by the Kaplan-Meier method. The prognostic significance of the

LNR was evaluated by multivariate analysis using Cox proportional hazard modeling with or without LNR as a covariate.

Results: Median follow-up was 5.1 years (range, 0.4–16.0). The median age was 62 years (range, 21–80). The median number of nodes removed was 18 (range, 6–81). By minimum p value approach, 0.2 was the cutoff value of LNR at which most significant difference in DFS and DSS was observed. The patients were classified into two groups: patients with $LNR \leq 0.2$ and $LNR > 0.2$, which represented 66.9% and 33.1% of the study cohort, respectively. The DFS and DSS rates correlated significantly with clinical N stage, pathologic N stage, lymphatic, vascular or perineural invasion and LNR (≤ 0.2 vs. > 0.2). In multivariate analysis, pathologic N stage and lymphatic invasion were significant prognostic factors for DFS and DSS ($p<0.05$). However, when the LNR was included as a covariate in the model, the LNR was highly significant ($p<0.001$), and the number of positive nodes lost its significance ($p>0.05$).

Conclusions: The LNR predicts recurrence and survival more accurately than pathologic N classification in our study. The number of positive nodes and LNR should be considered together in risk estimates for rectal cancer patients.

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POSTER

The Impact of Serum Carcinoembryonic Antigen (CEA) Normalization on Survival in Rectal Cancer Treated With Preoperative Chemoradiation

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Background: This retrospective study was to evaluate impact of CEA normalization on survival in rectal cancer patients who received curative intent surgery after preoperative chemoradiation (CRT).

Materials and Methods: Between July 1996 and June 2010, 109 patients underwent surgery for histologically confirmed rectal cancer after preoperative CRT. The dose of radiotherapy was median 50.4 Gy (range, 43.2–54.4) for 6 weeks. Chemotherapy was bolus injection of 5-fluorouracil and leucovorin for the first and last week of radiotherapy ($n=84$, 77.1%) or capecitabine daily administered during radiotherapy ($n=18$, 16.5%). Low anterior resection ($n=90$, 82.6%) or abdominoperineal resection ($n=19$, 17.4%) was performed median 47 days from the end of radiotherapy, and then 4 cycles of adjuvant chemotherapy was done. Down staging was defined as the lowering of the T, N stage between pretreatment CT and pathological stage. Serum carcinoembryonic antigen (CEA) level was checked at initial diagnosis and just before surgery. Disease free survival (DFS), distant metastasis free survival (DMFS) and overall survival (OS) rates were estimated by the Kaplan-Meier method, and the Cox proportional hazard model was used in multivariate analyses.

Results: After median follow-up of 48 months (range, 9–174), 5-year DFS was 72.5% and 5-year OS was 76.7%. The initial CEA level and normalization CEA after CRT were significant prognostic factor for DMFS and OS ($p=0.0004$, $p=0.0051$ and $p=0.0152$, $p=0.0004$, respectively). The downstaging of T and N occurred in 34 (31.2%) and 70 patients (64.2%), respectively. Univariate analyses indicated that pT, pN, perineural invasion (PNI), lymphatic invasion (LI) were significant prognostic factors for DFS. cT, pT, pN, PNI, LI were significant predictive factors for OS. In multivariate analyses, pT, downstaging of N and PNI were significantly associated with improving DFS ($p=0.017$, $p=0.013$ and $p=0.002$, respectively). The cT, PNI were significant prognostic factors for OS ($p=0.013$, $p=0.001$, respectively).

Conclusions: In our study, clinical or pathologic stage, initial CEA level were again confirmed to be prognostic factors for survival in rectal cancer patients. However, it is first suggested that patients who achieved normal CEA level at the time of surgery had more favorable outcome than who kept high CEA level after preoperative CRT. The normalization of CEA level could provide important information about prognosis in rectal cancer treatment.

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POSTER

Dosimetric Comparison of Three Dimensional Conformal Radiotherapy With Intensity Modulated Radiotherapy & Bone Marrow Sparing Intensity Modulated Radiotherapy in Preoperative Radiation of Locally Advanced Carcinoma Rectum

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Background: We compared target coverage, conformity, homogeneity, normal tissue avoidance and irradiated body volume in 3 sets of