3611 Poster Session (Board #103), Mon, 8:00 AM-11:00 AM

Long-term outcomes after high-dose chemoradiotherapy for non-surgical management of distal rectal cancer. *First Author: Edina Dizdarevic, Vejle Hospital, Vejle, Denmark*

Background: Surgery is standard treatment for rectal cancer, but neoadjuvant chemoradiotherapy (CRT) may result in clinical complete response (cCR) in selected patients, allowing for non-surgical management (NSM). Prospective studies of NSM strategies are sparse however, and long-term data on quality of life (QoL) are limited. We conducted a single-arm phase II trial of high-dose CRT for NSM of distal rectal cancer; we report secondary long-term patient-reported outcomes (PROs), local regrowth and overall survival (OS) in patients managed non-surgically. **Methods:** Fifty-one patients with resectable, T2 or T3, N0–N1, low adenocarcinoma received 65Gy (IMRT, brachytherapy boost) and oral tegafur-uracil. Patients with cCR 6 weeks after treatment (clinical examination, MRI, biopsy) were referred for observation, and followed closely with clinical examinations, endoscopies, PET-CTs, and PROs for 5 years. Overall colorectal cancer specific QoL and specific symptom scores were compared between timepoints using paired Wilcoxon tests. Local regrowth was estimated using cumulative incidence; overall survival using Kaplan-Meier estimates. **Results:** Forty patients achieved cCR after treatment; 28 were in follow-up at 24m, 21 at 36m, 18 at 60m. Patients left the trial due to local tumor regrowth (n=12), distant metastases (n=3), new primary cancers (n=6) and loss to follow-up (n=1). Average QoL score did not differ between baseline (median 11.1) and 24m (13.7), 48m (11.1,) or 60m (6.9). See Table for individual scores; only rectal bleeding deteriorated from baseline (significantly worse at 24m). At median follow-up of 5.0 years, local regrowth rate and OS were 31% (95 CI 15%-47%) and 85% (95 CI 75%-97%), respectively. **Conclusions:** Long term follow-up after NSM of early rectal cancer showed excellent general colorectal cancer QoL and local symptom scores. (NCT00952926). EORTC QLQ – CR 29. Proportion reporting 'quite a bit' or 'very much' on symptom scales. Clinical trial information: NCT00952926.

	Baseline (n=40)	24m (n=28)	48m (n=22)	60m (n=18)
Daytime urinary frequency	27%	12%	18%	11%
Urinary incontinence	0%	0%	9%	0%
Rectal pain	0%	4%	4%	0%
Blood in stools	8%	27%	23%	11%
Faecal incontinence	3%	7%	0%	0%
Daytime bowel movement frequency	14%	17%	17%	12%

3612 Poster Session (Board #104), Mon, 8:00 AM-11:00 AM

Simultaneous versus staged resection for synchronous colorectal cancer liver metastases: A population-based cohort study. *First Author: Pablo Emilio Serrano Aybar, McMaster University, Hamilton, ON, Canada*

Background: Simultaneous resection of colorectal cancer primary and liver metastases is not performed routinely due to concerns about safety. We hypothesized that simultaneous resection has steadily increased overtime and that the outcomes are similar. **Methods:** Population-based cohort study of patients undergoing resection for synchronous (resection of the primary colorectal cancer and liver metastases within six months) liver metastases from 2006-2015 by linking administrative datasets in Ontario, Canada. Outcomes: post-operative complications, length of hospital stay, and overall survival. Survival for the staged group was measured from the last surgical resection to death and estimated using Kaplan Meier and compared with the log-rank test. Cox proportional hazard models were used to calculate risks for death. We aimed to identify practice patterns, outcomes of simultaneous vs. staged resections for these patients. **Results:** Of 2,738 patients undergoing colorectal and liver resection for colorectal cancer, 1,168 were synchronous, of which, 442 underwent simultaneous resection. Rate of synchronous disease presentation increased on average by 3% per year ($p = 0.02$). Median length of stay was shorter (8 vs. 11 days, $p < 0.001$); rate of major liver resections were lower (17% vs. 65%, $p < 0.001$), and 90-day post-operative mortality was higher (6% vs. 1%) for simultaneous resections. Major postoperative complications were higher in the simultaneous group (28% vs. 23%, $p = 0.067$), mostly due to a higher reoperation rate (6% vs. 3%, $p = 0.034$). Median overall survival was worse with simultaneous resection (40 months, 95%CI 35-46 vs. 78 months, 95%CI 59-86). Risks factors for worse survival were comorbidities, rurality, right-sided primary and simultaneous resection. There is selection bias that favours survival in the staged group, as patients must have survived the first operation and have stable disease in order to undergo the second operation. **Conclusions:** Simultaneous resection is associated with worse post-operative outcomes. Considering selection bias, randomized studies would be necessary to determine the role of simultaneous.

3613 Poster Session (Board #105), Mon, 8:00 AM-11:00 AM

Pathway analysis of hypoxia-related factors in early colorectal cancer patients with poor prognosis. *First Author: Yingxin Tan, The Sixth Affiliated Hospital of Sun Yat-sen University, Guangzhou, China*

Background: Colorectal cancer is one of the most common malignancies with a high mortality rate. Patients with stage I and stage II colorectal cancer have limited options for treatment. Hypoxia affects the activation and regulation of colorectal cancer cells and participates in its invasion and migration. However, there is lack of an accurate and non-invasive method for assessing tumor hypoxia. The aim of this study was developing and validating a hypoxia gene signature for predicting the outcome in stage I/II colorectal cancer patients. At the same time , we hypothesized that analysis of database of CIT microarray dataset could identify important biomarkers for stage I/II colorectal cancer patients. **Methods:** A total of 309 colorectal cancer patients of early stage with complete clinical information were enrolled for construction generation of hypoxia-related gene signature (HRGS) based on the CIT microarray dataset. 1877 colorectal cancer patients with complete prognostic information in 5 independent datasets were divided into a training cohort and two validation cohort (TCGA and meta-validation). Prognostic analysis was assessed in these cohort to evaluate the predictive value of HRGS. **Results:** A model of prognostic HRGS containing 14 hypoxia-related genes was developed. In training cohort and two validation cohorts, patients in hypoxia high-risk group satisfied by our HRGS had significant poor disease free survival compared with those in the in the low risk group (HR=4.35, 95% CI=2.30-8.23, P<0.001 in training cohort, HR=2.14, 95% CI=1.09-4.21, P=0.024 in TCGA cohort, HR=1.91, 95% CI=1.08-3.39, P=0.024 in meta-validation cohort). When compared with Oncotype DX, HRGS achieved an improved survival correlation in the training cohort (mean C-index, 0.80 vs 0.65, P<0.05) and the validation cohort (mean C-index, 0.70 vs 0.61 in the TCGA cohort, mean C-index, 0.68 vs 0.73 in the meta-validation cohort). Analysis of the data found that patients with low survival rates have significant relationships with genes regulated by the cell cycle pathway, such as mTROC1, E2F, G2-M, mitotic, oxidative phosphorylation, MYC, PI3K-AKT-mTOR (P<0.005). **Conclusions:** HRGS was a satisfactory prognostic prediction model for early stage colorectal patients. Hypoxia-related genes that regulate the cell cycle pathway were associated with prognosis in patients with stage I and stage II colorectal cancer. Further researches are needed to assess the clinical effectiveness of the system and the treatment options for biological targets.

3614 Poster Session (Board #106), Mon, 8:00 AM-11:00 AM

Clinical features and survival among patients with standard-onset versus early-onset colorectal cancer by age groups. *First Author: Ana Acuna Villaorduna, Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, NY*

Background: Colorectal cancer (CRC) incidence is increasing in patients younger than 50 years old. Currently, there are discordant recommendations regarding CRC screening: while the American Cancer Society favors to start at age 45, the National Comprehensive Cancer Network and the US Preventive Task Force suggest starting at age 50. This study is aimed to compare the incidence, clinical characteristics and survival of patients diagnosed with standard-onset CRC (SO) versus early-onset colorectal cancer by age-groups. **Methods:** Patients diagnosed with CRC at ages older than 35 were identified using the SEER registry and categorized into four groups based on age at diagnosis. EO1 (35-39), EO2 (40-44), EO3 (45-49) and SO (>50) years, respectively. Incidence, clinical features and survival were compared among groups. **Results:** 178 678 patients were identified. 9.2% were diagnosed before 50 years. Of these, 1.4%, 2.8% and 5.1% were EO1, EO2 and EO3; respectively. Patients with early-onset CRC (EO) had higher frequency of Hispanics (13.9% vs. 8.4%, p<0.01), stage IV (24.8% vs. 17.3%, p<0.01), left-sided tumors (74.1% vs. 56.9%, p<0.01) and better survival compared to SO. Among EO groups, the frequency of poor/anaplastic grade was inversely proportional to age; stage IV was similar between EO2 and EO3 and lower in EO1. Black race, grade and stage were predictors of mortality for all EO groups; laterality was a mortality predictor in EO2 and EO3. **Conclusions:** EO-CRC and SO-CRC have different pathological features that should be considered for CRC screening. Higher rates of stage IV disease are encountered in patients between 40-49 years old; hence early screening should be considered. Given higher rates of left-sided tumors, sigmoidoscopy might be an adequate tool for most patients with EO-CRC.

	EO1	EO2	EO3	SO	p*
Incidence (per 100 000)	8.8	16.5	30.1	146.8	
Male (%)	50.2\	51.4	53.9	51.8	<0.01
NHW (%)	1.1	2.3	4.5	92.1	<0.01
NHB (%)	1.6	3.7	6.4	88.3	<0.01
Hispanic (%)	2.7	4.3	7.4	85.5	<0.01
Poorly/Anaplastic grade (%)	23.5	20	19	18.7	<0.01
Sigmoid to anal (%)	65.2	66	67.1	49.9	0.14
Left-sided (%)	74.1	73.4	74.4	56.9	0.32
Stage IV (%)	17.3	26.6	24.7	24.3	<0.01
5-year OS	64.5	66.6	65.9	54.9	

p* comparison between EO groups