Gastrointestinal cancer: Esophagus, stomach, pancreas, liver, rectum, liver metastases, biliary

Gastric cancer: Results. 3D vs IMRT based on NTCP model and analytical data

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Introduction. McDonald study is the gold standard in gastric cancer treatment. NTCP is a guidance tool for planning and to evaluate organs at risk tolerance.

Objectives. Analyzed the results of 230 patients of our area of reference treated for gastric cancer and compare liver and kidney NTCP in 3D vs IMRT in 40 patients on based of the analytical parameters.

Material and method. We have retrospectively analyzed the results of 230 patients in the area of Vigo diagnosed with gastric cancer, treated with radio-chemotherapy after surgery from January 2000 to March 2011. We analysed 40 patients who were treated by 3D radiotherapy, relating data of kidney and hepatic NTCP (XIO method) in function of clinical and analytic parameters and comparing NTCP with those that would be planned with IMRT.

Results. The global survival was 65 months of average (0.98–137.9 months). Tolerance was good, only enteritis grade 3:1.8%, diarrhea grade 3: 0.89%, vomit grade 3: 0.87%. In most of the 40 patients analysed and treated with 3D, we found a minimal data of NTCP in the liver; in 10 patients we observed a NTCP more than 10; in the analytical, only hepatopathy grade 2 in 3 patients as the same time of metastasis and in one patient grade 3 (patient with long term alcoholism). IMRT improved the NTCP in all patients. We did not observe differences between both techniques related to NTCP of kidney.

Conclusions. We have obtained similar results as in the McDonald study in terms of global survival. The treatment tolerance was good, with low grade of toxicity. IMRT improves the NTCP but we did not find serious alterations in the majority of the patients treated with 3D, only in one patient hepatic toxicity grade 3. We can use IMRT in selected cases with intercurrent pathology to reduce hepatic involvement.

http://dx.doi.org/10.1016/j.rpor.2013.03.744

High dose neoadjuvant radiochemotherapy in poor-risk rectal cancer

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Purpose. To evaluate high-dose neoadjuvant radiochemotherapy (RCT) followed by surgery in MRI and EUS-Defined Poor-Risk rectal cancer.

1507-1367/$ – see front matter
Results. Findings. We used the weighted kappa index to evaluate concordance grade between \( T_r \) vs pathologic \( T_p \) and \( N_r \) vs pathologic \( N_p \). The kappa index was 0.17 (IC 95%: −0.06 to 0.41) to \( T_r \) vs \( T_p \) and =.16 (IC 95%: 0.11 to 0.57) to \( N_r \) and \( N_p \). Both results were not significant with \( p \) 0.11 and \( p \) 0.23 respectively.

Materials. Between February 2004 and June 2012, 68 eligible patients were recruited. The criteria for poor-risk rectal cancer were tumors with circumferential resection margin threatened, T4 tumors, and N2 tumors. Patients received high dose neoadjuvant radiotherapy with a median dose of 59.4 Gy with a concomitant fluoropyrimidine based chemotherapy. Surgery was planned 6–8 weeks after CRT. The primary objective was local control; secondary objectives were resection (R) status, pathologic response, overall survival (OS), metastatic progression free survival (MPFS) and toxicity.

Results. At a median follow-up of 29.5 months (6.9–81.7), local control rate was 94.1%. Sixty-four patients (94.2%) proceeded to surgery, and two of them receives surgery combined to 8 Gy intra-operative radiation therapy. 58 patients had R0 resection, 4 patients had R1 resection and 2 patients had R2 resection. Four patients remained inoperable. Pathologic complete response (pCR) was observed in 9 patients (13.2%), and in additional 40 patients had downstaging (58.8%). The MPFS after 1 and 3 years were 83% and 45.3% and the OS 1- and 3-year survivals were 95.4% and 61.6%, respectively. Adjuvant chemotherapy was not associated with a significantly improvement of OS in good responders (pCR, pT0-2). RCT was well tolerated, with only one grade 3 (1.2%) gastrointestinal toxicity (diarrhea). Main grade 1 toxicities were proctitis (36.8%), diarrhea (32.4%), and anemia (26.5%).

Conclusions. High dose neoadjuvant radiochemotherapy in poor-risk rectal cancer is associated with improved tumor resectability and allow to increase the local control without an increase in acute toxicity.

http://dx.doi.org/10.1016/j.rpor.2013.03.745

Improve pathological response with neoadjuvant IMRT for rectal cancer

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Introduction. Although surgery remains the main treatment for rectal cancer, neoadjuvant radiotherapy is the standard treatment in patients with locally advanced stage. Improving radiotherapy treatments should result in a better local control without higher toxicity profiles.

Purpose. The purpose of this study is to determine whether or not dose scalation translates into higher complete pathological response. We also analyze other pathological derived prognostic factors, metastatic disease rate and patient’s survival.

Methods. Study of 68 patients with rectal adenocarcinoma, T3-4 N+ treated with neoadjuvant radio-chemotherapy. All patients received IMRT and most of them concomitant Capecitabine. Radiotherapy treatments were administered with Oncor Expression LINAC (Siemens®), planning system used was XIO 4.62 (CMS®). IGRT was performed with cone-beam in all patients. Surgery was performed 6–8 weeks after treatment in all patients.

Results. Sixty-seven patients (98.6%) completed IMRT treatment, 28 patients received a 2 Gy/day equivalent dose lower than 55 Gy and 40 received a 2 Gy/day equivalent dose higher than 55 Gy G-III (CTCAE v3.0) acute toxicity was gastrointestinal (10.3%), genitourinary (5.9%), skin (1.5%). Sphincter sparing surgery was performed in 53 patients (78%). Mean distance from anal verge to tumor at diagnosis was 7.47 cm (1–15 cm). Twenty patients achieve complete pathological response (29.4%), in 17 additional patients (25%) there was grade 3 regression (Rödel scale). Radial margin was free of infiltration in 91.2% of anatomical pieces. After 40 months follow-up no local recurrence was found, 10 patients (14.7%) have developed distant metastasis. Forty months estimated overall survival is 94.7%.

Conclusions. Dose escalation IMRT for rectal cancer in our experience is safe and achieves high rates of complete pathological responses. Tumor free radial margin, demonstrated as good prognostic factor, was also achieved in 91.2% of the patients.

http://dx.doi.org/10.1016/j.rpor.2013.03.746

Is MRI predictive after RTQT at rectal carcinoma?

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Introduction. There is a tendency to perform MRI after concomitant radiotherapy and chemotherapy in rectal carcinoma, to assess response before surgery.

Objectives. To determinate the predictive value MRI pre-surgery in rectal carcinoma after pre-surgery concomitant radiotherapy and chemotherapy (RTQT).

Material and method. Since June 2011 until December 2012, we included 26 patients who were treated with neoadjuvant RTQT and had pre-surgery MRI. Chemotherapy 5-FU continue infusion treatment was in 74% patients during radiotherapy and 22.2% patients oral capecitabine. The radiotherapy scheme was 45 Gy over pelvis and 50.4 Gy over rectum plus margin. This scheme was in 88.6% patients and the rest of them were treated with other radiotherapy schemes. After treatment, the patients were evaluated with pelvic MRI before surgery and we obtained the \( T_r \) and \( N_r \) (Tr and Nr). We have compared this \( T_r \) and \( N_r \) (Tr and Nr) with histopathologic in 88.6% patients and the rest of them were treated with other radiotherapy schemes. After treatment, the patients were evaluated with pelvic MRI before surgery and we obtained the \( T_r \) and \( N_r \) (Tr and Nr).