radiochemotherapy

Prognostic factors of gastric cancer treated with adjuvant radiochemotherapy

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Purpose or Objective: The aim of this study was to evaluate the outcome and prognostic factors for patients with locally advanced gastric cancer (LAGC) treated with adjuvant radiochemotherapy, according Macdonald scheme.

Material and Methods: Between May 2004 and October 2014, a total of 106 patients, 70 men and 36 women, with locally advanced gastric cancer were treated in the University Hospital 12 de Octubre, Spain. The mean age was 57 years. The mean follow-up was 96.48 months. The most common tumor location was antrum (29.25%). The majority of tumors were T3 (52.83%) or T4 (22.64%) and 86.79% had nodal metastases, with an average of 8.24 nodes involved. Predominant histological subtype was diffuse (43.4%) and poorly differentiated (grade 3, 50%). Complete resection (R0) was achieved 84.91%, whereas microscopic residual disease (R1) was found in 13.21%. Survival was calculated by Kaplan-Meier and method and differences were assessed by the Log-rank test. Multivariate analysis was used Cox proportional hazards regression model.

Results: A total of 50 (47.16%) patients relapsed; 16 (15.09%) loco-regional, 13 (12.06%) peritoneal, 18 (16.98%) distant metastases and 3 (2.83%) unknown. The overall survival (OS), disease-free survival (DFS), locoregional failure-free survival (LFS) rates to three years were 48.75%, 46.27% and 76.72% and to five years were 32.11%, 38.78%, 69.67% respectively. In univariate analysis, T stage (T1-T2), N negative stage and R0 resection were associated with better survival (p<0.05) for OS and only N negative stage for DFS and LFS. In the multivariate analysis identified only R0 resection as an independent predictor of better survival (p<0.05) for OS and DFS.

Conclusion: In this study, the prognostic factors associated with better survival in patients with LAGC treated with adjuvant radiochemotherapy were: T stage (T1-T2), N negative stage and R0 resection (p<0.05). Complete R0 resection also can be considered as independent prognostic factor of better survival (p<0.05).

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Influence of pretreatment blood parameters on the outcome of gastric cancer patients.
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Purpose or Objective: Activation of coagulation and fibrinolysis are found among gastric cancer patients. The ones with non-metastatic gastric cancer are at risk for thrombotic events due to the combined increase in fibrinogen plasma levels and thrombin formation. It could be associated with a higher risk of local invasion and might be important poor predictive and prognostic factor. In our study, we sought the associations between blood parameters and outcome

Material and Methods: The study examined eighty-nine patients with biopsy-proven, operable gastric adenocarcinoma, with no evidence of distant metastases. Pre-operative fibrinogen, PT, APTT and INR levels were measured before surgery. Complete blood count were also collected before initiation of therapy. All patients underwent surgery as a primary treatment. The survival function was computed using Kaplan-Meier method. The overall survival (OS), Diseases- free survival (DFS), time to distant metastases (DM) and loco-regional control (LRC) were calculated from the date of surgery. Multivariate analyses and characteristic (ROC) have been done.

Results: In Multivariate Cox analysis higher level of WBC was associated with worse local control (p=0.0024), and shorter overall survival (p=0.0035). Shorter Prothrombin Time was correlated with better overall survival (p=0.0280). Higher Fibrinogen level has caused better local control (p=0.0280). No other correlation between DFS, LRC, DM and OS and other blood parameters were observed in multivariate analyses.

Conclusion: The level of White Blood Cells, Fibrinogen and Prothrombin Time were found to be useful prognostic factor which influenced overall survival and local control. However, further prospective investigations are necessary to assess the predictive value of those factors.

EP-1276

Stereotactic robotic body radiotherapy for patients with unresectable hepatic oligometastases.
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Purpose or Objective: To evaluate the feasibility, efficacy and toxicity of robotic SBRT for the treatment of unresectable hepatic oligometastases.

Material and Methods: Between 09/2010 and 01/2013, 15 consecutive patients (12 female, 3 male, median age at treatment: 70.5, range: 57-85 years) with up to 3 synchronous or metachronous hepatic oligometastases were referred for Cyberknife treatment (Accuray Incorporated, Sunnyvale, CA) at our center. In order to enable tumor tracking, gold fiducial markers were inserted around the lesion 2 weeks prior to each treatment. The treatment was delivered using the Synchrony Respiratory Tracking System to continuously track fiducial position and adjust for respiratory motion during treatment. Treatment planning was performed using the Multiplan TPS (v4.6, Accuray) with Raytracing algorithm, and was retrospectively recalculated using a Monte Carlo dose calculation algorithm (v5.1). The primary endpoint of this study was local control (LC), assessed with either contrast enhanced spiral CT or MRI. Secondary endpoints were liver and distant progression free-survival (liverPFS and DFS), overall survival (OS) and treatment toxicity, evaluated using the Common Terminology Criteria for Adverse Events v4.0. (Institute NC, NIH publication 2009). Statistical analysis was performed using R software (3.1.1, R Development Core Team 2010).

Results: A total of 20 metastatic lesions were treated from primary colorectal (7), breast (7), unknown primary (3), melanoma (2) and stomach (1) cancer. The mean GTV and PTV volumes were 23.8cc (Standard deviation (SD):23) and 74.5cc (SD:45.3) respectively. All treatments were delivered 3x/week in a median three fractions (range: 3-6) to a median dose of 45 Gy (range: 30-45), prescribed to the 80% isodose line. This corresponds to an equivalent 2-Gy dose of 93.75Gy,
when considering a α/β ratio of 10. The mean GTV and PTV D98% and D50% were 41.6Gy (SD:7.7) and 46.5Gy (SD:6.8), 39.3Gy (SD:7) and 46.1Gy (SD:6.6) respectively. Each treatment was delivered by an average of 158 beams. All dose constraint parameters proposed by Timmerman were respected (Semin.Radiat.Oncol.2008). Furthermore, the average difference between the Raytracing and the Monte Carlo algorithm was 0.43% on these values. At a median follow up of 30.9 months (range: 5.7-50.3), the 1 and 2-year LC rates remained stable at 83.5%. The 1 and 2-year liver PFS and the DFS rates were 57.1%, 46.1% and 75.5%, 64.4% respectively. The 2 year OS was 60.6% (Figure 1). No acute grade 2 toxicities were observed. Three patients reported late grade 2 gastro-intestinal toxicities. No late grade 3 nor 4 grade 2 toxicities were observed. Three patients reported late grade 2 gastro-intestinal toxicities. No late grade 3 nor 4 toxicities were reported.

Conclusion: Robotic SBRT is feasible, safe and very well tolerated for the treatment of hepatic oligometastases. Our outcome results compare favorably from previous published studies of SBRT. It could represent a valid treatment option in the multimodality treatment of unresectable hepatic oligometastases.

EP-1277
Adjuvant chemoradiation for resected gallbladder cancer: single center 25-year experience
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Purpose or Objective: Patients with locally advanced gallbladder cancer (LAGC) have a dismal prognosis. We investigated outcomes and risk factors for overall survival (OS) in patients treated with radical surgery and adjuvant chemoradiotherapy (CRT).

Material and Methods: A total of 212 patients with LAGC (cT3 59% and/or cN+ 52%) were studied. For survival outcomes potential associations were assessed in univariate and multivariate analyses using the Cox proportional hazards model. We constructed a risk scoring system in which points were assigned to each risk factor by dividing each β coefficient in the final model by the lowest β coefficient and rounding to the nearest integer.

Results: Median follow-up was 46.2 months (2-235). Five-year OS for the entire cohort was 50.2%. In multivariate analysis higher pT stage [HR 1.73, p = 0.01], R1 resection [HR 5.06, p < 0.01], and number of surgical procedures [HR 1.41, p = 0.05] were associated with an increased risk of death. A risk model was generated to determine a prognostic index for individual patients with LAGC.

Conclusion: Overall results after multimodality treatment of LAGC are promising. Classification of risk factors for death has contributed to propose a prognostic index that could allow us to guide risk-adapted tailored treatment

EP-1278
CCRT with or without surgery using Helical Tomotherapy or IMRT for esophageal cancer patients
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Purpose or Objective: To retrospectively review the treatment outcome of esophageal cancer in our hospital, and compare the radiotherapy efficacy and toxicity of helical tomotherapy with step-and-shoot Intensity Modulation Radiation Therapy (IMRT).

Material and Methods: Between 2007 and 2012, 108 consecutive patients with locally advanced esophageal cancer, cT2-4N0-3M0-1, received neoadjuvant concurrent chemoradiotherapy (CCRT) followed by esophagectomy or definitive CCRT treatment course respectively. The radiotherapy was delivered with helical tomotherapy in 56 patients, and with conventional IMRT in other 52 patients. We had evaluated outcomes with radiation dose, overall survival rate (OS), disease-free survival rate (DFS), and toxicity of radiation pneumonitis.

Results: The median follow-up duration was 16 months. The median time of overall survival among all patients was 15 months. The treatment modality with neoadjuvant CCRT followed by esophagectomy had favorable OS (47.6% : 10.4%, p = 0.014), DFS (42.9% : 23.9%, p = 0.013), and local recurrence (33.3% : 50.7%, p = 0.574) comparing with definitive CCRT. No significant difference outcome of OS was found between tomotherapy and conventional IMRT. The patients using tomotherapy had less incidence and severity of radiation pneumonitis (only one patient with less than grade 3 radiation pneumonitis in tomotherapy group; 5 patients < grade 3 and 2 patients > grade 3 radiation pneumonitis in conventional IMRT group).

Conclusion: In our study, the treatment outcomes of neoadjuvant CCRT followed by esophagectomy for esophageal cancer are better in OS, DFS, and local control than definitive CCRT. Tomotherapy may reduce lung dose, and probably reduce incidence and severity of radiation pneumonitis when compared with conventional IMRT.

EP-1279
SABR in inoperable liver oligometastatic patients and radioresistant primary tumors
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Purpose or Objective: To evaluate the feasibility and efficacy of Stereotactic Ablative Body Radiotherapy (SABR) in the treatment of liver metastases from radioresistant primary tumors.

Material and Methods: Patients with inoperable liver metastases from renal cancers, melanoma and sarcomas, not amenable to other locoregional therapies, treated with SABR were included in this retrospective study. Inclusion criteria were: Karnofsky Performance Status of 70; no evidence of progressive or untreated gross disease outside the liver; maximum tumor diameter less than 6 cm; no more than 3 liver lesions; normal liver volume greater than 1000 cm3; adequate liver function. Dose prescription ranged from 75 to 50.26Gy in 3 consecutive fractions, delivered with RapidArc VMAT, with 10MV FFF photons. Local control was defined according to RECIST criteria.Toxicity was classified according to the Common Toxicity Criteria (CTC) version 3.0.

Results: From April 2010 to October 2015, 20 patients were treated with SABR for a total number of 24 lesions. Median follow-up was 21 (range 6-58) months. In field progression was observed in 1 patient for a total of 2 lesions. One and 2...