strongest predictive factors and to derive optimum cut-off values for predicting likelihood of toxicity incidence.

Results: Grade ≥2 acute RTOG upper GI toxicity attributed to treatment was seen in 11 patients (52%), grade ≥3 in 3 (14%); grade ≥2 diarrhea was recorded in 3 patients (14%), grade ≥3 in 2 (10%). In patients who experienced grade ≥2 toxicity, stomach V35 Gy and V40 Gy remained significant after Bonferroni correction (p<0.004) and ROC analysis was performed to identify the most predictive cut-off values: V35 Gy 55.7cm³ and V40 Gy 43.6 cm³ (both sensitivity 0.82, specificity 0.80, Youden index = 0.62). Significant associations were not seen between duodenal dose-volume and acute toxicity, nor between small-bowel dose-volume and incidence of treatment-related diarrhea.

Conclusion: In concomitant chemoradiotherapy with nelfinavir for pancreatic cancer, stomach dosimetric parameters were associated with clinically important acute radiotherapy toxicity and thresholds were derived for predicting toxicity risk. Stomach V35 Gy and V40 Gy were most strongly predictive of acute grade ≥2 side effects.

EP-1269
Dose tolerance of small bowel in patients treated with radiochemotherapy for pancreatic cancer
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Purpose or Objective: Specific results of SBRT for liver metastases from rare tumors have been reported scarcely. This applies also to metastases from low grade neuroendocrine tumors (NET), either derived from gastrointestinal organs or from an unknown primary site. Here we report two cases of multiple liver metastases from low grade NET repeatedly treated by means of SBRT, achieving the outcome of long-term local control.

Material and Methods: From March 2011 to September 2015 49 SBRT courses were delivered to 39 patients for liver metastases from different primaries. All courses were given by VMAT with 6 MV photons, image guided by CBCT in every fraction. Since 2013, deep inspiration breath hold was adopted in order to control organ motion. Two patient had metastases from well differentiated neuroendocrine tumors, one from an unknown primary (patient A), the other from a pancreatic primary (patient B). Patient A underwent two SBRT courses, both in 2011, the first one on segment 6 (CTV volume 25 ml, CTV dose 75 Gy, PTV 50 Gy, in 3 fractions), the second one on two adjacent metastases, respectively in segment 7 and 8 (total CTV volume 54 ml, CTV dose 60 Gy, PTV 50 Gy, in 3 fractions).Patient B received three courses, respectively in 2013, 2014 and 2015. The first SBRT was delivered on segment 6 (CTV volume 38 ml, CTV dose 50 Gy, PTV-44 Gy, in 5 fractions), the second on segment B (CTV volume 30 ml, CTV dose 50 Gy, PTV 45 Gy, in 5 fractions), the last on segment 4 (CTV volume 44 ml, CTV dose 50 Gy, PTV 45 Gy, in 5 fractions). Patient A was found to be somatostatine receptor-negative, thus he was followed up mainly by serial CT scans; also, his disease status matched well to trends of two biomarkers (chromogranin A and gastrin). Patient B was followed up by alternating CT scans and PET/CT-68Ga-DOTATOC.

Results: At last follow up patient A achieved long-term local control in S6 metastasis (45 months) as well as in S7-8 (42 months), while showing disease progression at a new liver site at 45 months after first SBRT. At last follow up patient B achieved local control in all sites (S6: 30 months; S8: 13 months; S4: 6 months) with a durable partial PET response in S8 and S4 and a complete PET response in S6. Disease progression took place in two bone sites at 30 months after first SBRT, without any concomitant liver progression.
Conclusion: these favorable results in large volume liver metastases from low grade NET, although derived from only two anecdotal cases, give support to the concept that the outcome of SBRT is relatively independent from tumor type, being mainly mediated by an ablative effect. Also they represent a typical example showing how repeat liver SBRT may lead to a a significant delay in disease progression although without achieving a definitive cure.

EP-1271
Stereotactic body radiation therapy for malignant tumours of the pancreas
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Purpose or Objective: To review stereotactic body radiation therapy (SBRT) safety and local control utility in malignant tumor of the pancreas based in a single center experience since February 2014.

Material and Methods: A systematic review was done. Thirteen patients were treated with SBRT. Eleven patients had a primary pancreatic tumor and two patients had metastatic affectation of the pancreas. In those patients with primary pancreatic cancer, four patients were treated with a radical intent, five as a part of a neoadjuvant treatment and four patients with a palliative intent. All of the treated tumors had a diameter bigger than 2 cm. At least 2 fiducials were located into the tumor, guided by endoscopic ultrasound. All the treatments included CT or PET-CT for GTV delineation, intensity-modulated radiation therapy (IMRT) with intrafraction treatment of tumor motion with a Novalis Exactrac Adaptive Gating System. 50 Gy in 10 fractions were prescribed in each patient, one patient was treated with 35Gy in 5 fractions and one patient was treated with 40Gy in 10 fraction.

Results: Pancreatic SBRT was very well tolerated in our cohort of patients. No grade 3 or higher toxicity was observed. Only 3 patients developed grade 2 epigastric pain and/or grade 2 nausea/vomiting. The median patient age was 62 years old (range 36 - 86 years) and the median follow-up was 14 months (range 2 – 18 months). Five patients under went surgery after SBRT. The median overall survival was 14.5 months (range 2.4 - 18.2 months), with 65.3% survival at one year. Median survival time is 15 month (range 12 - 17 months). Median time to local progression has not been reached.

Conclusion: In our experience, gating SBRT for pancreatic tumor is a well-tolerated feasible treatment. Most patients are free from local progression, but overall survival remains poor. Prospective studies are needed to define the role of SBRT for pancreatic tumors.

EP-1272
Stereotactic radiotherapy in pancreatic cancer. Review of two different treatment approaches
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Purpose or Objective: Stereotactic body radiotherapy (SBRT) in pancreatic cancer can be limited by its proximity to critical organs at risk (OAR) of the upper abdomen. In this study we evaluate the toxicity and efficacy of two different treatment approaches.

Material and Methods: Patients with recurrent or oligometastatic pancreas cancer were treated with SBRT. The planning target volume (PTV) was created through a 4 mm expansion of the internal target volume (ITV) based on a four dimensional CT (4D-CT). All patients were treated with intensity modulated radiation therapy (IMRT). In some cases we created a sub-volume, in order to reduce the risk of toxicity in critical adjacent OARs without compensating the whole PTV. This sub-volume was defined as a simultaneous integrated protection (SIP) PTV. The SIP consisted of the interface of the PTV with the planning risk volume (PRV) of a specific vulnerable structure at which we prescribed a pre-defined reduced dose.

Results: Between 2009 and 2014, 18 patients with 23 lesions were treated in our institution. Seven patients were treated for a local recurrence, nine were treated for oligometastases (liver, lymph nodes) and two patients were treated for both. Of these lesions 11 were treated with SIP and 12 were treated without SIP. The median follow up was 10.8 months (range 1.2-40.3 months). The freedom from local progression (FFLP) at 6 and 12 months was 90% and 84% respectively. The overall survival (OS) rates at 6 months and 12 months after SBRT were 77% and 54%, respectively. Two patients (11%) experienced grade >3 acute toxicity (mechanical ileus, gastrointestinal bleeding) and 2 patients (11%) experienced a grade >3 late toxicity (cholangitis, bleeding).

Conclusion: Local control and overall survival after SBRT in this high risk group of patients with pancreatic cancer were excellent despite of dose sacrifice in half of the patients when OARs were close to the PTV, with overall favourable toxicity.

EP-1273
Clinical results of stereotactic ablative radiotherapy in the treatment of liver metastases
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Purpose or Objective: To evaluate the efficacy and feasibility of stereotactic ablative radiotherapy (SABR) in the treatment of liver metastases.

Material and Methods: We retrospectively analyzed patients with 1-2 secondary liver lesions treated with SABR. The total dose prescriptions were 30 Gy, 37.5 Gy and 45 Gy on three consecutive days in 42.8%, 22.8% and 34.4% of patients respectively. The dose was prescribed to the 80% isodose line covering the PTV. The primary endpoints were in field local control and toxicity; the secondary endpoint was survival rates.

Results: Between March 2007 and May 2015, 30 patients (17 males, 13 females) with 36 liver metastases were treated. The mean age was 66 years (range, 40-90 years). Twenty-five patients (83.3%) had a single hepatic lesion and the remaining 5 patients (16.7%) two hepatic lesions. Twenty-five patients (64.5%) had extrahepatic stable disease. The most frequent sites of primary tumor were colorectal (58%) and breast (20%). The majority of the lesions treated (75.6%) had a diameter of less than 3 cm. With a median follow-up of 21 months (range 2.3-69.8 months) for all patients, “in field” local control rate was 90%. No patient developed a toxicity greater than grade 2 according to CTC scale v4.02 and no radio-induced liver disease (RILD) was recorded. One-year LC and two-year LC were 62% and 39% respectively. One-year and two-year PFS were 46% and 25% (median, 11 months). One-year, two-year and three-year OS were 89%, 69 and 42%.