EP-1285
Clinical results of image-guided liver SBRT using VMAT and real-time adaptive tumor gating
O. Riou1, C. Llacer Moscardo1, P. Fenoglietto1, L. Bedos1, J. Nollier1, E. Hortelano Pardo1, N. Aillères1, D. Azria1, C. Paterson1
1MCI Val d’Aurelle, Radiation Oncology, Montpellier Cedex 5, France

Purpose/Objective: Motion management is a major challenge in abdominal SBRT. We present our study of SBRT for primary or secondary liver tumors using intrafraction motion review (IMR) which allows simultaneous KV information and MV delivery to synchronize the beam during gated RapidArc treatment.

Materials and Methods: Between May 2012 and April 2014, 25 consecutive patients were treated with curative-intent liver SBRT. All patients were treated using gated RapidArc technique with a Varian Novalis Truebeam STx linear accelerator. An isotropic margin of 5mm around the ITV was used to create the PTV. Mean PTV volume was 117.81 cc. Dose prescription ranged from 40 to 50 Gy in 5 to 10 fractions. The prescribed dose and number of fractions were chosen depending on hepatic function, irradiated liver volume and dose-volume histograms results. All patients were analysed for toxicity. Twenty-three patients with a minimal follow-up of six months were analysed for local control.

Results: With a median follow-up of 10 months, the treatment was well tolerated and no patient presented RILD, perforation or gastrointestinal bleeding. Acute toxicity consisted on 3 patients with G1 abdominal pain, 1 with G1 nausea, 8 with G1 asthenia and 1 with G2 asthenia.

In-field local control was 91.3%, with 5 complete responses (21.7 %), 9 partial responses (39.1 %) and 7 stabilizations (30.4 %). 2 patients evolved 'in field'. 3 patients had an intrahepatic progression 'out of field'.

Conclusions: The clinical tolerance and oncological outcomes were favorable when using Image-guided liver SBRT with real-time adaptive tumor gating.

EP-1286
Dose related efficacy of LMS-611 in Radiotherapy Induced Xerostomia & an ex vivo study
C. Paterson1, M. Thomson2, B. Caldwell3, M. Messow3, S. Porteous4, A. McLean4, G. Park4
1The Beatson West of Scotland Cancer Center, Clinical Oncology, Glasgow, United Kingdom
2The Beatson West of Scotland Cancer Center, Therapy Radiography, Glasgow, United Kingdom
3University of Glasgow, Robertson Centre for Biostatistics, Glasgow, United Kingdom
4Lamellar Biomedical Ltd, Lamellar Biomedical Ltd, Bellshill, United Kingdom

Purpose/Objective: Radiotherapy induced xerostomia (RIX) is the most common permanent side effect of radiotherapy (RT) to the head and neck (H&N) with no effective treatment. LMS-611 is a mimetic of a natural lamellar body which has been shown to have the potential to reduce the ‘stickiness’ of oral cavity secretions following RT.

Our pre-clinical study was designed as an ex vivo, efficacy, proof of concept study as a preparatory step towards our clinical study of LMS-611 in RIX.

Materials and Methods: Patients with H&N cancer who were booked for RT or chemoRT (CRT) as primary treatment were recruited.

Patient reported xerostomia scores were collected using the Groningen RIX (GRIX) questionnaire at baseline, weeks 2, 4 and 6 of radiotherapy. Saliva samples were also collected and adhesiveness and viscosity tested by assessing time taken to travel 5cm on an inclined plane (IP). LMS-611 was added to saliva samples and IP test repeated.

Results: 30 patients were enrolled. All patients had a pathologically confirmed diagnosis of squamous cell carcinoma (SCC) oropharynx. Mean age 54.8 years, range 42-67. 80% were male and the majority stage III and IV disease (96.6%). 90% received CRT.

The mean IP test results (seconds) are as follows baseline 31.3; week 2 49.7; week 4 51.1; week 6 55.7 indicating increasing saliva adhesiveness and viscosity as RT progresses.

The increase was significant from baseline to week 2 with only moderate increases from week 2 to 4 and week 4 to 6.

Wide inter-patient variability was seen at baseline. GRIX scores increased as RT progressed, see figure. Differences between GRIX scores at weeks 2, 4 and 6 were statistically significant when compared with pre-treatment scores. Modest variability in GRIX scores was seen at baseline and this remained constant.

The IP test results were compared with GRIX scores, Spearman Correlation Co-efficient was -0.06 at baseline, 0.25 at week 2, 0.12 at week 4 and 0.08 at week 6, therefore no relevant correlation was seen.

The addition of saline, LMS-611 2.5mg/ml or 5mg/ml to the saliva samples does not reduce saliva adhesiveness and viscosity. However, when LMS-611 in concentrations of 10mg/ml and 20mg/ml are added a significant reduction is seen in the IP test (not shown). Analysing the inclined plane results as survival data separately for each time point and overall adjusting for week of RT demonstrates this statistically significant difference see table.