**Stereotactic Body Radiotherapy in Primary Hepatocellular Carcinoma and Oligometastatis to Liver : A Single Institution Experience**

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**Introduction:**

Treatment of selected cases of primary Hepatocellular carcinoma and oligo metastatic liver diseases, which are often unresectable, with Stereotactic Body Radiotherapy (SBRT) is an established method of management. This study evaluates the local control rates of patients treated with SBRT for primary HCC and oligo metastatic liver lesions.

**Material and methods:**

A total of 21 patients with 26 lesions treated with SBRT between February 2015 and March 2018 were evaluated. 3/21(14.2%) patients were primary hepatocellular carcinoma histology, 2/21 (9.4%) were primary cholangiocarcinoma and 16/21 (%) patients were metastatic lesions most common primary being malignant melanoma of anal canal 3/21 (14.2%) and squamous cell carcinoma of oesophagus 3/21 (14.2%). Most of these patients had single lesion 16/21 (76.1%), 3/21 (14.2%) patients having two lesions each and 1/21 (4.7%) patient with three lesions treated with SBRT. Patients were immobilized with thermoplastic mask and an indigenous abdominal compression device was used for motion management. Radiation planning triple phase CT scan was performed with slice thickness of 1mm. PET/CT scan and MRI scan are fused with the planning CT scan. GTV is delineated and ITV is generated based on CT image data set in multiple phases of respiration. Adequate PTV margin was given. 2/21 (9.4%) patients were treated with IMRT technique, 17/21 (79%) were planned with volumetric arc technique on linear accelerator and 2/21 (9.4%) were treated with helical Tomotherapy technique. The mean volume of the lesions treated was 31.1cc (Range, 1.5cc to 314.9cc). Dose ranged from 18Gy-24Gy in single fraction, 24Gy-54Gy in three fractions and 30Gy-50Gy in 5 fractions. Mean volume of normal liver is 1195cc. Mean dose to 700cc of normal liver was 365.8cGy (Range, 11.7cGy-1428.6cGy). All the patients received different types of systemic therapy as well.

**Results:**

The median follow up was 24 months. All 21 patients were evaluable for response based on an abdominal triple phase computed tomography scan obtained in every 3 months after completion of SBRT. All 5/5 (100%) patients of primary HCC and cholangiocarcinoma were in radiological complete response at local site at the end of 12 months. 15/16 (93.7%) patients with metastatic liver lesions had radiological complete response at the end of 12 months. Two year local control rate for metastatic lesions was 90%. None of the patients developed Grade 3 or higher toxicity.

**Conclusion:**

In our series of 21 patients ofprimary hepatocellular carcinoma and oligo metastatic liver lesions excellent local control has been achieved by Stereotactic Body radiotherapy with acceptable toxicity in patients with.