

## Prognostic Evaluation of NLR and ALBI with Local Control in Hepatocellular Carcinoma Treated with SBRT and Hypofractionated RT

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### Abstract

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## Abstract

### Objectives:

Stereotactic Body radiotherapy (SBRT) and Hypo-fractionated radiation (HFRT) are important local treatments in liver-confined hepatocellular carcinoma (HCC) in patients unsuitable for curative therapy. The EBRT dose, technique and prognostic factors are evolving. We evaluated the impact of Neutrophil-Lymphocyte Ratio (NLR) and Albumin-Bilirubin (ALBI) grade with local control (LC) in patients treated with SBRT/ HFRT in HCC

### Methods:

We retrospectively reviewed 50 patients of HCC treated with HFRT at our institution. SBRT and HFRT schedule was chosen such that the radiation dose to the remaining liver and other organs at risk (OAR) met the standard dosimetric guidelines. SBRT treatment was delivered in 5 fractions to a radiation dose of 40-50 Gy. HFRT dose ranged from 45 Gy to 67.5 Gy in 5 – 15 fractions. The biologically equivalent dose (BED) for tumor ranged from 58.5 Gy<sub>10</sub> to 100 Gy<sub>10</sub>. Local control (LC) was evaluated by Kaplan-Meier analysis, with log-rank test for groups stratified as per NLR and ALBI.

### Results:

The mean duration of follow-up was 24 months. The median age was 69 years (range 50 – 90) and 76% were males. 32 patients had CP-A class cirrhosis while 17 had CP-B and 1 had CP-C class. BCLC stage A, B, C and D was seen in 2, 14, 33 and 2 patients, respectively. 23 patients had received prior TACE. 15 patients were treated with SBRT while 35 patients were treated with HFRT.

In SBRT group, 2 patients had local recurrence with 87% LC rate, while 7 patients had local recurrence in HFRT group with 80% LC rate. The 1 year actuarial LC was in patients with pretreatment NLR greater than 4 was 74% versus 94% with NLR less than 4 (p=0.45). The 1-year actuarial LC in patients with ALBI 1 was 80% versus 75% in ALBI 2 patients (p=.40).

### Conclusion(s):

SBRT and HFRT has good 1-year local control of 87% and 82% respectively in carefully selected unresectable HCC. NLR and ALBI grade showed a trend towards prognostic significance in HCC patients treated with definitive RT. This information can help in identifying the poor responders and intensifying the radiation treatment and adding additional therapy to improve the oncological outcomes. These factors should be evaluated in larger prospective series with longer follow up.