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Differentiated Abscopal Effect from the Same SBRT Treated Melanoma Host

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Abstract

Objectives: We hypothesize that synergistic effects between PD1 antibody and SBRT may happen differently at different metastases. Using concurrent PD1 antibody and SBRT approach, we investigated the site specific abscopal effect (AbE) in stage IV melanoma patients.

Methods: 9 stage IV melanoma patients with lung and liver metastases were included in the study, 3 treated with combination of SBRT and PD1 antibody (Pembrolizumab); 6 treated with SBRT alone. SBRT was given in 6 fractions in 3 weeks to total 36 Gy. Patients' ECOG PS was 0-2, no previous radiation therapy history. Of total 22 lesions; 13 in the lung (5 vs. 8 lesions in the combination group vs. in the SBRT alone group); 9 in the liver (4 vs. 5 lesions in the combination group vs. in the SBRT alone group). At 8 week post SBRT, biopsies obtained from 22 lesions for tumor infiltrating lymphocyte (TIL) analysis. Flow-cytometry was conducted using CD8 probes. Median follow up duration was 4 months.

Results: Overall Response Rate (ORR) at the SBRT sites was 100% (3/3) in the combination group and 66.6% (4/6) in the SBRT alone group. Pseudo progression observed in lung lesions in the combination group, but no pseudo progression found in the SBRT alone group. In site specific AbE analysis, AbE happened differently in lung and liver. In the lung, AbE occurred more often in the combination group (60% in the combination group and 12.5% in the SBRT alone group); in liver, similar finding noticed that AbE was 40% in the combination group vs 0% in the SBRT alone group . In TIL analyses, in lung lesion, CD8 positive cell in the combined group was 3.4 fold higher than that in the SBRT alone group; in the liver, CD8 positive cell in the combined group was 1.2 fold higher than that in the SBRT alone group.

Conclusions: In our cohort, AbE happened more often in lung than in liver in melanoma. Within the same host, there might be differentiated AbE at different metastatic sits, more studies are needed to confirm the above statement.

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