DOI: 10.29289/259453942019V29S1CP07

OVERALL SURVIVAL INCREASE AFTER TREATMENT OF BRAIN METASTASIS FOR HER-2 POSITIVE PATIENTS USING TRASTUZUMAB

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Objectives: Breast cancer is a heterogeneous, phenotypically diverse disease composed of several biological subtypes that have distinct behavior. Amplification or overexpression of the human epidermal growth factor receptor 2 (HER2) oncogene is presented in approximately 15% of primary invasive breast cancers. Target anti-HER2 therapies have become important agents in the treatment of metastatic breast cancer and have altered the natural course of HER2-positive breast cancer. The risk of brain metastasis in women with overexpression HER2 is 12% in 10 years and a modality of treatment with brain radiosurgery (SRS) has been responsible for increasing local brain control with low morbidity. **Methodology:** Patients with diagnosis of breast cancer brain metastasis treated with SRS from 2007 to 2017 were divided into 3 groups: 1) HER2-positive who received treatment with trastuzumab (subgroup-1); 2) HER2-positive who didn't receive treatment with trastuzumab (subgroup-2) and; 3) HER2 negative, including triple negative and luminal (subgroup-3). Statistical analysis was performed using Fisher's test and Kaplan-Meier curve, considering 5 criteria separately: overall survival (OS), progression free survival (PFS) for the central nervous system (CNS) after radiosurgery, brain disease free survival (DFS) after diagnosis and survival after radiosurgery for brain metastasis (OSARS-overal survival after RS). **Results:** Among the 78 patients with brain metastasis of breast cancer treated with SRS, 37% were HER2-positive. WBRT can be avoided in 66% HER2-positive patients, and in the subgroup-1 can be avoided in 62%. OS in 5 years was 31% (mean: 34 months, 95%CI 26.95–42.49). OS after diagnose CNS metastasis in 5 years was 18% (95%CI 26.95–42.49). PFS for the CNS after 1st radiosurgery in 1 year was 67% and 5 years was 9% (mean: 56months, 95%CI 19.48–31.50). The average time patient was alive after CNS metastasis was 56 months for subgroup-1 and 31 months for subgroup-2 and 36 months for subgroup-3. OS in 2 years after treatment of CNS metastasis was 80% for subgroup-1 (OR=0.9, 95%CI 0.19–4.5, p=0.01) when compared with subgroup-2, and OS in 2 years after treatment of CNS metastasis was 68% for subgroup-2 and 65% for subgroup-3. **Conclusion:** The results corroborate that SRS of CNS metastasis combined with trastuzumab therapy in HER2-positive patients may act in synergism, contributing with OS increase after treatment with SRS in CNS metastasis.