



Role of HER2 Status in the Treatment of Brain Metastases Arising from Breast Cancer by Stereotactic Radiosurgery

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Background

- It is well recognized that HER2+ breast cancer is associated with a great risk of CNS metastases.
- Use of trastuzumab in the adjuvant setting did not decrease the rate of metastases.
- Stereotactic radiosurgery has been employed for local control of these lesions to prevent significant morbidity
- New anti-HER2 agents are being actively researched for treatment of CNS mets after radiation failure.

Objective

- To assess the efficacy of stereotactic radiosurgery (SRS) in treatment of limited brain metastases (BM) from breast cancer based on HER2 status
- To evaluate differences in the outcome for HER2 positive tumors.

Materials and Methods

- 57 breast cancer patients with known HER2 status included.
- All but 1 pts with HER2 positive disease received adjuvant trastuzumab
- All patients were treated with SRS using Leksell Gamma Knife as their first treatment modality for CNS mets
- Time to local recurrence, time to development of new BM, progression free survival (PFS) and overall survival (OS) were assessed from date of SRS

Patient Characteristics

	HER2+ (n=28)	HER2- (n=29)
Median age	54	52
ER-	14	7
ER+	13	19
PR-	18	13
PR+	9	13

Treatment Characteristics

	Median	Range
# Lesions	2	1-7
Dose	20 Gy	12-20 Gy
Brain volume irradiated	141.2 mm	10-944.1mm
Lesion volume	92.8	3.4-793.7mm
% lesion covered	99	81-100

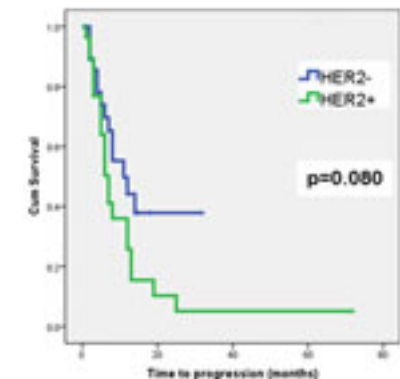
Results

	HER2+ (n=28)	HER2- (n=29)
Median PFS	7 months	11 months
6-month PFS rate	64.1%	69.7%
12 month PFS rate	36.0%	44.2%
Median OS	22 months	12 months
12-month OS rate	64.7%	48.7%
24-month OS rate	41.6%	14.2%

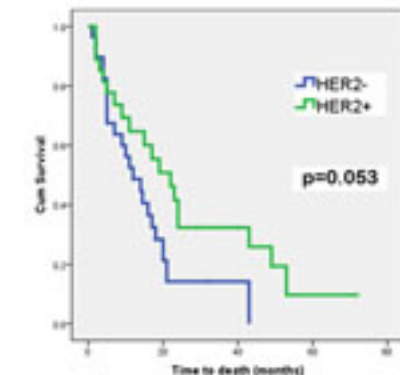
Post-Treatment

	HER2+ (n=28)	HER2- (n=29)
# patients requiring salvage RT	14	6
WBRT	5	3
SRS	5	3
Other	4	0
Leptomeningeal metastases	5	0

Progression-Free Survival



Overall Survival



Summary

- Shorter time to progression and longer survival in HER2+ patients ($p=0.080$ and $p=0.053$ respectively)
- HER2+ patients require more salvage therapy
- Leptomeningeal metastases may be more common among HER2+ patients

Conclusion

- HER2+ patients appear to be at greater risk for intracranial disease and may require more aggressive management