290P: Treatment with tyrosine kinase inhibitors (TKIs) based therapy in trastuzumab emtansine (T-DM1) resistant HER2-positive metastatic breast cancer: A real-world study

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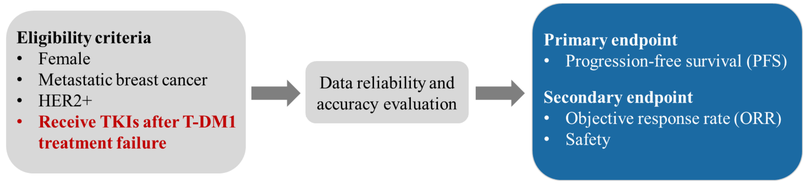
BACKGROUND

Trastuzumab emtansine (T-DM1) has shown great effectiveness in treating HER2-positive metastatic breast cancer, but therapies after T-DM1 progression are still controversial. Here, we report the real-world data of tyrosine kinase inhibitors (TKIs) based therapy in T-DM1 resistant HER2-positive metastatic breast cancer.

METHODS

From August 2019 to April 2021, 48 HER2-positive metastatic breast cancer patients received TKIs-based therapy after T-DM1 progression in Jiangsu Province Hospital. We evaluated the efficacy and safety of TKIs in treating T-DM1 resistant HER2-positive metastatic breast cancer.

STUDY DESIGN



RESULTS

Table 1. **Baseline characteristics of 48 T-DM1 resistant HER2 positive metastatic breast cancer patients.**

Characteristic	No. (%) (n=48)	Characteristic	No. (%) (n=48)
Age		**Trastuzumab Resistance**	
Median (interquartile range)	52(43-57.5)	Resistance	22(45.8%)
HR status		Refractoriness	26(54.2%)
HR positive	17 (35.4%)	**Lines of T-DM1 therapy**	
HR negative	31 (64.6%)	1	12 (25.0%)
Visceral metastases		2	26 (54.2%)
Yes	30 (62.5%)	≥3	10 (20.8%)
No	18 (37.5%)	**Kinds of TKIs**	
Metastatic sites		Lapatinib	32 (66.7%)
Lymph nodes	30 (62.5%)	Pyrotinib	16 (33.3%)
Lung	19 (39.6%)	**TKIs Regimens**	
Liver	10 (20.8%)	TKIs + capecitabine	39 (81.3%)
Bone	7 (14.6%)	TKIs + trastuzumab	5 (10.4%)
Brain	11 (22.9%)	TKIs + vinorelbine	1 (2.1%)
Chest wall	8 (16.7%)	other	3 (6.2%)

48 patients received TKIs-based therapies as a second or later line therapy. 46 (95.8%) patients received a combined therapy, including TKIs plus capecitabine, vinorelbine or trastuzumab. 2 (4.2%) patients received TKIs alone. The median progression-free survival (PFS) was 10.5 months (95%CI 5.432-15.568). Objective response rate (ORR) was 17.4%, and clinical benefit rate (CBR) was 73.9%. For patients who had brain metastasis (n=11), the median PFS was 10.5 months (95%CI 7.406-13.594) and intracranial ORR was 27.3%. No difference was observed between lapatinib (n=32) and pyrotinib (n=16) groups (8.0 months vs. 13.3 months, P=0.243). The most common adverse events were hand-foot syndrome (11, 22.9%) and thrombocytopenia (10, 20.8%).

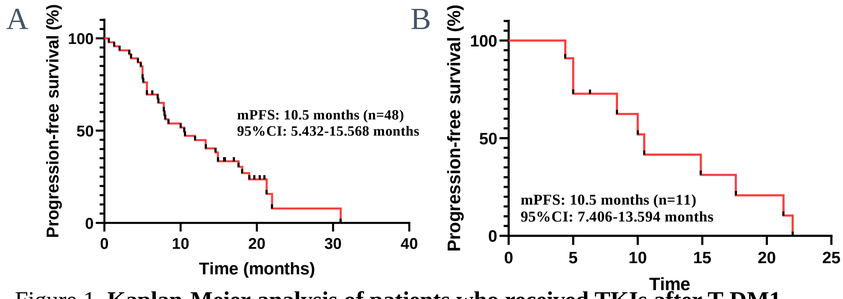


Figure 1. **Kaplan-Meier analysis of patients who received TKIs after T-DM1 resistance. (A) PFS of all patients. (B) PFS of patients with brain metastases.**

Aadverse events	All grades	Grade 3-4
Hand-foot sydrome	11 (22.9%)	2（4.2%）
Thrombocytopenia	10 (20.8%)	0
Neutropenia	7 (14.6%)	1（2.1%）
Diarrhea	6 (12.5%)	3 (6.3%)
Increased ALT and /or AST	3 (6.3%)	0
Hyperbilirubinemia	2 (4.2%)	0
Lymphocytopenia	1 (2.1%)	0
Rash	1 (2.1%)	0
Hyperlipaemia	1 (2.1%)	0
Drug hepatitis	1 (2.1%)	0

Table 2. **Adverse events of 48 T-DM1 resistant HER2 positive metastatic breast cancer patients who received TKIs.**

CONCLUSIONS

TKIs-based therapy could improve the survival of T-DM1 resistant HER2-positive metastatic breast cancer patients, including those with brain metastasis. This provides a novel therapeutic option for HER2-positive breast cancer treatments.

*** The authors have declared no conflicts of interest.**

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