

EFFECT OF TRASTUZUMAB ON CARDIAC EVENTS IN EARLY BREAST CANCER PATIENTS

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Abstract

Introduction: Trastuzumab, a humanized monoclonal antibody, has been widely used in HER2-positive breast cancer and other cancers for more than 20 years. It is generally considered safe and effective for many patients; however, there are some serious side effects, such as cardiotoxicity. Data on Thai patients are limited.

Method: We reviewed the electronic medical charts of Thai patients aged 18 years old and older who were diagnosed with early-stage HER2-positive breast cancer treated with trastuzumab as adjuvant therapy at King Chulalongkorn Memorial Hospital, Bangkok, Thailand, from 2013 to 2017. We evaluated the efficacy and safety after the introduction of trastuzumab for 5 years. Specifically, we studied the incidence of composite cardiac events, which included a reduction in left ventricular ejection fraction (LVEF), heart failure, cardiomegaly, valvular heart disease, and cardiac arrhythmia. Relevant factors, underlying diseases, LVEF measurements, and survival data were collected.

Results: Of 438 patients who received trastuzumab, 302 were treated in adjuvant setting. Composite cardiac events were observed in 63 patients (20.9%). Among these, 41 (65.1%) experienced a drop in LVEF of at least 10 percentage points, 8 (12.7%) had symptomatic heart failure, 24 (38.1%) developed new valvular heart disease, and 6 (9.5%) were diagnosed with cardiomegaly after receiving adjuvant trastuzumab. Trastuzumab was discontinued due to cardiac events in 17 patients (27%). Of these 17, 10 patients had to permanently discontinue trastuzumab early. No cardiac death was observed. Age and the use of anthracycline as adjuvant chemotherapy prior to trastuzumab were identified as statistically significant risk factors for cardiac events.

Conclusions: Trastuzumab-associated cardiac events were not uncommon among Thai patients. We recommend more frequent monitoring of LVEF, especially in older patients and those

Introduction

In Thailand, breast cancer is the most common cancer among women and the fourth leading cause of cancer-related death. Trastuzumab, a humanized monoclonal antibody, has been widely used for more than 20 years in the treatment of HER2-positive breast cancer and other HER2-positive cancers. A one-year course of trastuzumab has significantly improved the prognosis of patients with HER2-positive early-stage breast cancer. While it is generally considered safe and effective, some serious side effects, such as cardiotoxicity, have been reported. Data on Thai patients, however, remain limited.

Method and Materials

We reviewed the electronic medical charts of Thai patients aged 18 years old and older who were diagnosed with early-stage HER2-positive breast cancer treated with trastuzumab as adjuvant therapy at King Chulalongkorn Memorial Hospital, Bangkok, Thailand, from 2013 to 2017.

→ We evaluated the efficacy and safety after the introduction of trastuzumab for 5 years.

Discussion

In this study, we found that the frequency of trastuzumab-related cardiac events in our real-world study (20.9%) was higher than in the HERA landmark study and other randomized controlled trials. Other real-world studies similarly have reported higher incidences of cardiotoxicity to our study, ranging 14%–31%. In real-world setting, common cardiac events, such as LVEF drop, has proven to be temporary. The incidence of death due to cardiotoxicity was low in both our and other studies.

Conclusion

Trastuzumab-associated cardiac events were not uncommon among Thai patients. We recommend more frequent monitoring of LVEF, especially in older patients and those who have received anthracycline-based adjuvant chemotherapy.

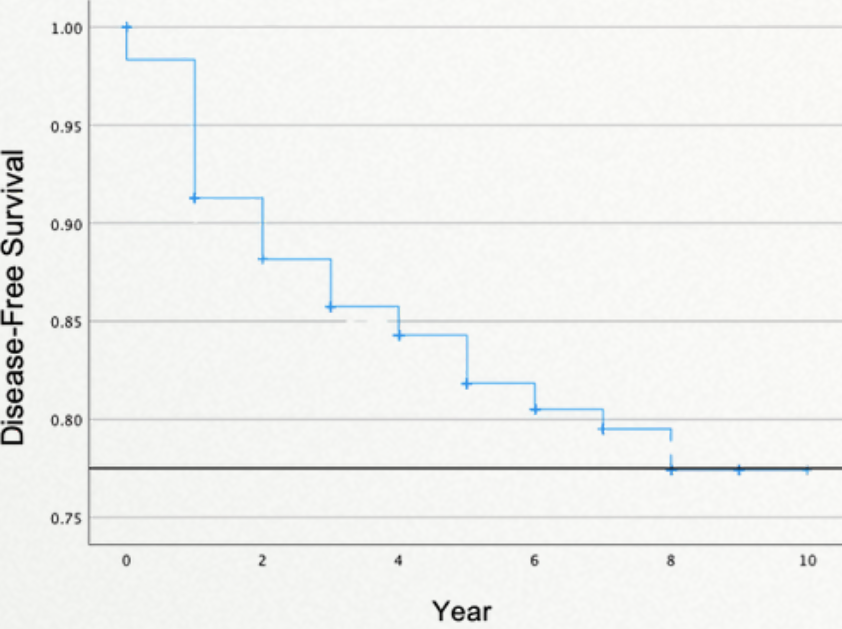
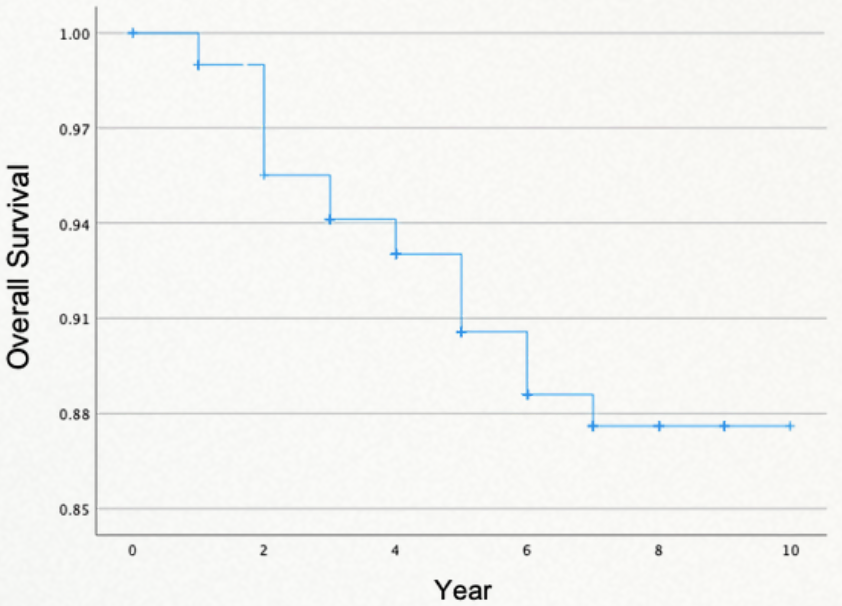
Result

A total of 302 patients met the eligibility criteria, with a mean age of 52.6 ± 10.7 years. Among them, 63 patients (20.9%) experienced cardiac events:

- 41 (65.1%) had decreased LVEF
- 8 (12.7%) developed symptomatic heart failure
- 6 (9.5%) were diagnosed with cardiomegaly
- 27 (42.9%) were newly diagnosed with heart disease after receiving trastuzumab.

Trastuzumab was discontinued in 17 patients (27%) due to cardiac events; 10 of them discontinued permanently. No cardiac deaths were observed. Older age and prior anthracycline use were significant risk factors. Median DFS and OS were not reached; the 10-year DFS and OS rates were 77.5% and 87.6%, respectively.

Characteristic	No cardiac events	Cardiac events	Total
Number of patients	239 (79.1)	63 (20.9)	302 (100)
Median age at diagnosis (IQR), years	51.9 (10.7)	55.3 (10.3)	52.6 (10.7)
Underlying diseases, no. of patients	97 (40.6)	32 (50.8)	129 (42.7)
Nodal status, no. of patients (percentage)			
Negative	96 (40.2)	29 (46.0)	125 (41.4)
Positive	141 (46.7)	34 (11.3)	175 (57.9)
Unknown	2 (0.8)	0 (0.0)	2 (0.7)
Pathologic tumor size, no. of patients (percentage)			
0-2 cm	65 (27.2)	18 (28.6)	83 (27.5)
>2-5 cm	124 (51.9)	33 (52.4)	157 (52.0)
>5 cm	50 (20.9)	12 (19.0)	62 (20.5)
Radiotherapy, no. of patients (percentage)			
Yes	197 (82.4)	50 (79.4)	247 (81.8)
No	41 (17.2)	13 (20.6)	54 (17.9)
Unknown	1 (0.4)	0 (0.0)	1 (0.3)
Chemotherapy, no. of patients (percentage)			
No anthracycline	59 (24.7)	14 (22.2)	73 (24.2)
Anthracycline, no taxane	16 (6.7)	13 (20.6)	29 (9.6)
Anthracycline, with taxane	164 (68.6)	36 (57.1)	200 (66.2)
Median baseline of LVEF (IQR), percentage	66.5 (5.8)	66.5 (7.5)	66.5 (6.2)



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