Title:

Efficacy and Possible Predictive Factor of Eribulin in Patients with Heavily Pretreated Metastatic Breast Cancer in the Real World: A Single Institution Retrospective Study in Taiwan

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Purpose:

Eribulin mesylate, a novel non-taxane inhibitor of microtubule dynamics, which was approved in 2010 for treatment of metastatic breast cancer (MBC) in patients who previously treated with anthracyclines and taxanes. Although eribulin is widely used for MBC, a predictive marker has not been clarified. The aim of this study is to evaluate the efficacy and clinical utility of immunological status in eribulin-treated MBC patients in a single institution of Taiwan.
Methods:

This retrospective monocentric study included 49 patients with MBC, pretreated with anthracyclines and taxanes, who received either eribulin monotherapy or combination anti-Her2 therapy between June 2015 to September 2019 at Taichung Tzu-chi Hospital. The median values with 95% confidence intervals (CIs) for time to treatment failure (TTF) were estimated with the Kaplan–Meier method. Probability values of < 0.05 were considered statistically significant.

Results:

The mean age of patients at eribulin treatment was 55 years old; 65% ER positive, 43% Her-2 positive, and 16% triple negative. 49% of patients had more than 2 sites of metastatic organ involvement; bone (n=35, 71%), liver (n=27, 55%), and nodes (n=23, 47%) were the most common site of metastases. 80% patients received 3 or more chemotherapy regimens before eribulin treatment and 43% of patients with HER2 positive tumor received eribulin in combination anti-HER2 regimen. The best tumor response to eribulin were observed as follows: 12 (24%) partial response (PR), 17 (35%) stable disease (SD), and 20 (41%) progressive disease (PD). The objective response rate was 24%, and the clinical benefit rate was 59%. The median time to treatment failure (TTF) was 7.03 months. Patients with neutrophil-lymphocyte ratio (NLR) <5 at baseline had significantly better median TTF than that patients with NLR≥5 (7.43 vs 3.73 months; p=0.014). Similarly, the median TTF was numerically longer in patients
with absolute lymphocyte count (ALC) ≥1500 at baseline than in patients with ALC<1500 (9.2 vs 6.28 months; p=0.055). The subgroup analysis didn’t show statistically differences of median TTF in histologic subtypes (p=0.794), metastatic organs (p=0.779), number of metastatic sites (p=0.208); except in visceral and non-visceral subgroups. A longer median TTF was observed in patients with non-visceral metastases vs visceral metastases (11.3 vs 6.3 months; p=0.030). Toxicities of eribulin were manageable; leukopenia, neutropenia, and anemia were the most common adverse events recorded and were usually of low grade.

**Conclusions:** In this retrospective study analysis, treatment with eribulin was shown to be efficacious and manageable toxicity in heavily pretreated MBC patients in real-world practice. NLR at baseline may potentially be a predictor for longer TTF in patients treated with eribulin.