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A predictive model to identify who would benefit from primary tumor surgery among patients with metastatic breast cancer at diagnosis: A population-based analysis

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Purpose: The prognostic role of primary tumor surgery among female patients with metastatic breast cancer is controversial. We ought to investigate whether primary tumor surgery can improve the overall survival and identify a subset of patients that will benefit from primary tumor surgery.

Methods: We conducted a retrospective, population-based cohort study by analyzing the 2010-2014 surveillance, epidemiology, and end results (SEER) program data. Using Kaplan-Meier curves, we investigated whether the primary tumor surgery could improve the overall survival. Analyzing the clinicopathological feathers by using Cox proportional hazards regression, we developed and validated a prediction model that predicts survival benefit in patients who has undergone primary tumor surgery and identified patients that would benefit from primary tumor surgery in the non-surgery cohort.

Results: Of 7217 SEER patients enrolled in our study, 3065 (32.5%) underwent breast surgery and 4152 (57.5%) did not. Patients who had surgery achieved both overall survival benefit (p<0.001) and breast cancer-specific survival (p<0.001). Age at diagnosis, race, differentiation grade, T stage, N stage, molecular subtype, metastatic sites, chemotherapy and radiation were associated with overall survival of patients among the surgery cohort. A prediction model was developed based on these factors and had been validated in an independent dataset. The model identified a subset of patients with remarkable survival and a subset of patients who would benefit from the primary tumor surgery.

Conclusions: We have developed a predictive model to identify patients that will achieve long-term survival benefit from primary tumor surgery. This model will provide guidance to physicians considering whether to conduct a primary tumor surgery for female patients with metastatic breast cancer.

Biography

Wen Zhao is pursuing her Master's degree in Clinical Medicine (Oncology) at Xi'an Jiaotong University. She is under the guidance of Dr. Jin Yang. Dr. Jin Yang and her group concentrate on the effect of angiomotin protein family on tumorigenesis and new therapy directions of triple negative breast cancer. She is interested in triple negative breast cancer, characterized by negative condition of ER, PR and HER-2, lack of effective targets and has done some researches on it. After reading plenty of articles, she found PIM1 might be an effective target playing a significant role in triple negative breast cancer.

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