

Prognostic Nomogram for Asian Breast Cancer Patients

Breast cancer has been shown to be a group of biologically distinctive disease with different natural history and treatment responses which may well share in common only their originating organ. Currently, the estimation of treatment responses and outcomes of breast cancer is mostly extrapolated from the study results of non-Asian patients and might not be accurate due to different genetic, socioeconomic and cultural background. **Dr Wong Fuh Yong**, Senior Consultant from National Cancer Centre Singapore, and his team set out to develop a prediction instrument based on the real-world outcomes of Asian breast cancer patients treated in Singapore. Here is what Dr Wong shared about his research titled “Creating a Prognostic Nomogram for Asians Breast Cancer Patients”.

Q: Could you briefly introduce what is nomogram and how nomogram works?

A nomogram is a user friendly graphical tool used to predict the probability of a clinical outcome such as breast cancer recurrence. It is a pictorial representation of a statistical model created from the real-life clinical experience of a large group of patients. A nomogram can be used to give individualized prediction for a patient based on her unique combination of personal and disease information.

Q: why is it necessary to develop a prognostic nomogram for Asian Breast Cancer Patients?

The main reasons are to inform patients about the future course of their illness and to guide doctors and patients in joint decisions on further treatment. While different prognostic tools have been developed, these are predominantly based on the experiences and outcomes of mainly western women with whom the Asian breast cancer patients share many similarities but also differ in important ways including the way the disease presents, the variety of breast cancers and the different responses to treatment.

Q: What are the key findings and major impacts of your study?

The predictive model developed from our data suggests that for prognosticating local breast cancer recurrence, the tumour size, Oestrogen Receptor (ER) status and age of patient at diagnosis are the most important. The commonly used nodal status in the TNM staging may be more influential in determining distant spread and the subsequent impact on patient’s survival but less so on local recurrence which is technically salvageable.

In contrast, for cancer specific survival, in addition to the size of the tumour and the number of positive nodes, the differentiation and age at diagnosis also affects cancer

survival, a novel finding which may improve upon the precision of prognostication for breast cancer patients.

Our model improves upon the commonly used TNM cancer staging system with higher resolving power of known prognostic factors like tumour size and numbers of positive nodes but also incorporates the weighted effects of known features such as age, grade and hormone receptor positivity.

Q: Who can use this nomogram?

Asian breast cancer patients diagnosed with Stage I – III breast cancers can use this nomogram.

Q: Is there any future research plan for this nomogram study?

Research is ongoing to validate the nomogram and fine tune it with additional calibration against another patient group In order to ascertain and improve the accuracy of the prediction.

Further improvements to this prognostic tool include plans to build in estimates of treatment costs and other follow-up procedures over time to allow patient and their doctors to make informed decisions on their care with a view to enhancing value.

(The study was funded by Singapore Cancer Society Cancer Research Grant.)