

Ethnic Differences in Survival after Breast Cancer in Southeast Asia*

Incidences of breast cancer in Asia have been increasing over the past decade. Yet, little is known about the impact of ethnicity on survival after contracting breast cancer in Asia. This paper aims to assess the influence of three ethnicities – namely Chinese, Malay and Indian.

Data on 5,264 women from the three ethnic groups – 3,767 Chinese, 968 Malays and 529 Indians – were analysed from the Singapore-Malaysia Breast Cancer Registry. Characteristics such as subject age, tumour size, lymph node involvement, oestrogen receptor status, progesterone receptor status tumour grade, loco-regional therapy, chemotherapy and hormone therapy were studied. The methods used in the study include the chi-square test and the Kruskal-Wallis test for the variables expressed by portions and medians, respectively. Other methods included the Kaplan-Meier estimator and Cox regression, which were used to estimate overall survival and relative risk for all-cause mortality.

The investigation showed distinctive results for the Malays. They had the lowest median age at diagnosis and highest median tumour diameter. They were also most likely to have lymph node involvement. Additionally, they were least likely to receive hormonal therapy and complete loco-regional treatment but most likely to receive chemotherapy. After 30,882 person-years of following up, a total of 1,690 deaths occurred from all causes, with the Malays having the lowest survival rate. Although there was no significant difference in survival rates between Malays and Indians for early stage breast cancer, the Malays had a significantly lower survival rate for advanced stage breast cancer.

The findings reveal that Malays had the highest number of cases of advanced stage breast cancer and aggressive tumour biology. Malays also showed a higher risk of mortality after breast cancer diagnosis. The poor survival rate of Malays may be attributed to their lower socio-economic status, cultural value differences, more aggressive tumour biology, less favourable response to treatment and lifestyle differences.

The lower economic status and education level of the Malays could explain why they were diagnosed at a later stage of cancer and having incomplete treatment in both loco-regional and hormone therapy. Similarly, religious beliefs contributing to cultural values could influence the awareness and treatment of breast cancer. Moreover, treatment response may vary in the different ethnic groups with some anti-cancer treatments working more favourably for one ethnic group than another. Lastly, with obesity being associated with late stage breast cancer, lifestyle factors such as diet and weight also play an important role in breast cancer prognosis.

Despite the fact that Malays have a lower survival rate after a breast cancer diagnosis, there is no clear relationship between ethnicity and breast cancer survival. Research on the tumour biology, responses to anticancer therapy and life style determinants need to be further conducted.

The full paper is available at

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0030995#s1>

* Bhoo- Pathy N, Hartman M, Yip C-H, Saxena N, Taib NA, et al. (2012) Ethnic Differences in Survival after Breast Cancer in South East Asia. *PLoS ONE* 7(2): e30995. doi :10.1371/journal.pone.0030995