Rural-Urban Disparities Contributed to Distinct Outcomes of Early Stage Breast Cancer

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Keywords

Breast cancer, early stage · Rural/urban · Outcome assessment · Prognosis

To the Editor,

A recent study examined the outcome of early breast cancer treated in rural and urban areas, indicating that rural patients showed more negative prognostic criteria, while the authors failed to find out the differences in survival [1]. We recruited patients with early stage breast cancer (stage I, II, IIIA or IIIB) that were first diagnosed, treated and received their post-operational treatment in different rural and urban hospitals in Shandong province between 1998 and 2009. Diagnosis was confirmed by pathological examinations in Qilu hospital. Follow-up information was obtained and updated annually by regular examination or telephone follow-up. All participants have given their informed consent, and the study protocol has been approved by the institutional review boards of Qilu hospital.

We analyzed 1,115 patients of Asian descent, and got similar conclusions with unchanged statistical pattern of significance as assessing patient's prognostic criteria. Survival analysis was performed and all the Kaplan-Meier curves of progression-free

survival (PFS, fig. 1a), disease-specific survival (DSS, fig 1b) and overall survival (OS, fig. 1c) showed poorer prognosis in rural cases. We did not perform multivariate Cox regression analysis because of incomplete treatment data (less than 40%). We reviewed the medical records and discovered more rural patients delayed their visit for diagnosis compared to urban patients (66.7 vs. 58.1%, $p < 0.01$). This may result from the inequality in health-care access, distinct socioeconomic status and health education levels, and affect patient's survival [2, 3].

We noticed that Heitz recruited patients with stage IIIC breast cancer and did not control epidemiological factors, which may result in the null outcomes [4, 5]. Based on our results, the rural-urban disparities in diagnosis are responsible for the significantly different outcomes of early stage breast cancers. Further study on this topic would be conducive to the improvement in breast cancer survival, and would greatly benefit women's health.

Disclosure Statement

All authors declare to have no relevant conflicts of interest.

Fig. 1. The rural-urban disparities in prognosis of breast cancer patients: **a** progression-free survival, $p = 0.035$; **b** disease-specific survival, $p = 0.043$; **c** overall survival, $p = 0.043$.

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