Reviewer's report

Title: Breast cancer stage at diagnosis and area-based socioeconomic status: A multicenter 10-year retrospective clinical epidemiological study in China

Version: 2 Date: 27 December 2011

Reviewer: Xue Qin Yu

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Comments on MS by Wang Q et al.

General comments

This is a hospital-based study to compare the risk of later stage diagnosis of breast cancer among 7 hospitals in China. Using data from 7 Chinese hospitals, the authors found that women with breast cancer living in less developed regions in China were more likely to be diagnosed with later stage disease compared with their counterparts in wealthy regions. These results have important implications: as geographical disparities in wealth and health are increasingly widening in China, efforts to reduce these disparities would have significant impact on population health as Chinese population affected by breast cancer is much greater than any other population in the world. If the risk of being diagnosed with later stage breast cancer in the wealthy regions applies to the whole Chinese population of these with breast cancer, there would be huge reduction in later stage diagnosis of breast cancer. Consequently the outcomes of breast cancer patients would be improved dramatically in China. Thus, this is an important step; the next step following this should be attempts to find the underlying causes for these disparities and then recommend policy makers to take targeted interventions to the high risk groups in the population to reduce, ultimately eliminate, these disparities in China.

However, the way of categorising socioeconomic status (SES) of the whole Chinese population into 3 groups is not appropriate because the building block is too big (7 regions in China). Therefore, a comparison of risk of getting later stage diagnosis in the highest SES region with low or median SES regions was essentially a comparison of Beijing with other regions in China. Thus, it would be more accurate to change the term of SES into regions to reflect the nature of the comparison. In addition, the socioeconomic variation in the risk of getting later stage diagnosis within region may be larger than that between regions; and regional health authorities have direct responsibility to reduce disparities within their regions.

Specific comments

Major revisions

1. It is not correct in my opinion to claim that this is a representative study of breast cancer in China (on page 10) and I don’t believe that you can generalise your results to the whole Chinese population. The reasons for this include (but
not limited to)

• This is a hospital-based study and all hospitals selected were leading public hospitals in China and also the selection method was convenient sampling;

• I don’t think the claim is true that each hospital selected covers the entire region (on page 4); it is logic to believe the majority of patients probably would seek care locally (I mean here in their own province especially for the provinces along the east coast in China). For example, it is hard to image that many breast cancer patients in Shandong province (one province in the East China region) would travel so far to Hangzhou, where the selected hospital for East China region located, to seek medical services;

• Shanghai is widely considered to have some of the best medical facilities in China, thus the geographic disparities would be even bigger if Shanghai was included in this comparison.

2. It is not clear to me how these hospital records were reviewed, whether pathology reports were reviewed as well, how the stage determined for these patients without surgery, who did the reviews (researchers in each local hospital or all reviews were done centrally at Beijing)

Minor revisions
Almost all the literature on this topic cited in this paper was US studies. How about studies from other developed countries in the world? Such as similar kind of studies from Europe, Canada or Australia. In a more recent study, I also found that women with breast cancer from socioeconomic disadvantaged areas in the United State had higher risk of being diagnosed with later stage. (Socioeconomic disparities in breast cancer survival: relation to stage at diagnosis, treatment and race. BMC 2009)

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.