

**Breast cancer in China: Demand for genetic counseling and genetic testing**

**To the Editor:**

For many years, the incidence and mortality of breast cancer have remained fairly stable in North America and Europe.<sup>1</sup> In contrast, the breast cancer incidence has increased dramatically in China with 3% to 4% annual increments<sup>1</sup> during the past two decades, a time period when economy has also grown dramatically. Cancer statistics of 2002 from Shanghai, China, shows an incidence of 279.2 per 100,000 for cancers in females and of 48.1 per 100,000 (in urban area of 61.7/100,000) for breast cancer.<sup>2</sup> Breast cancer is ranked first among all female cancers in China and becoming a major public health threat, at least in Chinese cities.<sup>2</sup>

Breast cancer is a polygenic disease with 5% to 10% of cases being hereditary in white populations in whom two major genes (*BRCA1/BRCA2*) have been identified.<sup>3</sup> Genetic counseling and genetic testing are provided routinely to high-risk individuals in developed countries and have demonstrated benefits in cancer prevention and treatment options.<sup>3,4</sup> In China, familial clustering of breast cancer is frequently observed, but genetic counseling and genetic testing are not available to high-risk individuals because of the lack of both genetic training programs and trained genetic counselors. Furthermore, the demand, if any, for such genetic services in a fast-developing China is not known and has not been investigated.

By using a questionnaire, we conducted a survey among 100 patients with breast cancer in the central Chinese city of Wuhan. Female patients with breast cancer were aged 31 to 84 years, and 90% of them were urban residents. Patients were asked to answer four questions with a scale of responses: (1) "Not needed" indicated a negative response, and (2) "Somewhat needed," (3) "Needed," and (4) "Definitely needed" represented positive responses of varying magnitude (Table 1). We added "gene therapy information" as a question aimed to understand public awareness of this potential option. We also wanted to know whether there was a demand for psychologic counseling currently also not available to patients with cancer in China. This survey was approved by the institutional ethics committee of Zhongnan Hospital.

Table 1 shows a majority of patients responding positively [(2) + (3) + (4)] to genetic counseling (Item 1, 72.4%) and genetic testing (Item 2, 64.6%). The responses to Items 1 and 2 did not differ statistically between patients with a younger age (31–50 years) and patients with an older age (51–84 years) ( $P > .05$  by  $\chi^2$  test). Many patients were also eager for gene therapy information (Item 3, 81.4%) and psychologic counseling (Item 4, 69.0%), and age seemed to influence their responses, that is, more patients with a younger age (31–50 years) responded positively than those with an older age (51–84 years) for Item 3 (88.9% vs. 72.1%,  $P = .035$ ) and Item 4 (78.2% vs. 57.8%,  $P = .028$ ). In addition, this survey found no statistical differences in responses between patients with different education levels (college or higher level vs. below college level) for all four question items. Of 100 patients surveyed, four (4%) had at least one first-degree relative with breast cancer and two (2%) had first-degree relatives with different cancers.

Our survey has clearly revealed for the first time the unexpected fact that many Chinese patients with breast cancer accept genetic counseling and genetic testing, perhaps for the benefit of both themselves and their relatives. These findings have important implications in that because of the absence of genetic counseling and testing, high-risk individuals have missed opportunities for periodic screening, early diagnosis, and prevention of breast cancer. This lack may contribute, in part, to the incremental increases in the incidence, and perhaps mortality,<sup>5</sup> of breast cancer in China unless urgent actions are undertaken. Because training will take many years, immediate relief in genetic services to Chinese patients with cancer will only rely on importing clinical genetic professionals from developed countries like the United States (NSFC Grant No. 30470981).

*Wen Jie Zhang, MD  
You Jun Gao, RN  
Qing Bo Li, RN  
Dan Xu, RN*

*From the Wuhan University Zhongnan Hospital and Cancer Research Center, Wuhan, Hubei 430071, China  
zhangwj82@yahoo.com*

**Table 1**

Responses of 100 patients with breast cancer to the questionnaire indicate a demand for clinical genetic services

Question Items	Total Response n	(1) Not Needed		(2) Somewhat Needed		(3) Needed		(4) Definitely Needed		(2) + (3) + (4)	
		n	%	n	%	n	%	n	%	n	%
		1. Some breast cancers may be hereditary. Would you need genetic counseling to define your cancer?	98	27	27.6	7	7.1	44	44.9	20	20.4
2. There are genes identified for breast cancer. Would you need genetic testing for your genes if available?	96	34	35.4	16	16.7	33	34.4	13	13.5	62	64.6
3. If gene therapy for breast cancer is available, would you need to know that information?	97	18	18.6	10	10.3	49	50.5	20	20.6	79	81.4
4. If available, would you feel that you need psychologic counseling for your cancer?	100	31	31.0	17	17.0	33	33.0	19	19.0	69	69.0

## References

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