ORIGINAL ARTICLE

Delayed presentation of symptomatic breast cancers in Hong Kong: experience in a public cancer centre

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Objective Delayed presentation is an important obstacle to improving cancer treatment outcomes. We aimed to study the magnitude of this problem in Hong Kong and the factors associated with delayed presentation of patients with symptomatic breast cancers.

Design Retrospective study using self-administered questionnaires.

Setting Clinical Oncology Department in a regional public hospital in Hong Kong.

Patients A total of 158 Chinese women with breast cancer referred to our hospital between October 2006 and December 2007 consented to participate in this study. Among these, 59 (37%) patients were referred after having surgery in private sector.

Results The mean total delay (from first symptom to treatment) was 22 weeks. The mean patient delay (from first symptom to first consultation) was 13 weeks, constituting the largest component (60%) of the total delay. After symptom onset, the delay exceeded 12 weeks for consulting a doctor in 29%, and for receipt of treatment in 52% of them. Low family income (<HK$5000 per month; P<0.001) and surgery in public hospitals (P=0.013) were both independent predictors of patient delay. Surgery in public hospitals (P=0.006) and low family income (P=0.005) were the only predictors of doctor/system delay and total delay, respectively.

Conclusions Delayed presentation and treatment of symptomatic breast cancer remains an important issue in Hong Kong. Apart from socio-economic factors, limited access to public medical care was likely an important contributing factor in delays related to patients as well as to doctor/system.

Key words
Breast neoplasms; Socioeconomic factors; Prognosis; Signs and symptoms; Time factors

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Introduction

Delay in seeking medical attention for symptoms signalling cancer has long been recognised as a serious obstacle to fighting breast cancer. Delay can be attributable to the patients, service providers (such as limited resources and long waiting times), and physicians themselves.[1,2] Studies in developed countries suggested that the contribution by patients and by service providers to the delay was roughly equal,[3] but this may not be so in less-affluent countries. Delayed presentation of cancer also has a significant economic impact, since it is far less expensive to treat patients with early-stage disease. An understanding of the factors influencing delays is therefore important for policymakers so that strategies to shorten delays can be developed. In a systematic review of studies on delayed presentation of patients with breast cancers, however, most studies were of suboptimal quality and the authors concluded that the current evidence was inadequate to inform the development of specific strategies to shorten delays.[4]

So far there is very little data about delay in breast cancer presentation in the Chinese inhabitants of Hong Kong, who have unique cultural, ethnic, and socio-economic characteristics. Accordingly, we conducted a clinical study to evaluate the magnitude of delayed presentation and associated factors, as well as the delay in definitive treatment after initial presentation.

Methods

A quantitative study using self-administered questionnaires was carried out in the

有乳癌症狀的患者延遲就醫的現況：香港一所公立醫院癌症中心的經驗

目的 延遲就醫是影響癌症治療效果的重要因素。本文探討香港在這方面的現況，以及有乳癌症狀的患者延遲就醫的原因。

設計 透過患者自行填寫的問卷調查進行回顧研究。

安排 香港一所分區公立醫院的臨床腫瘤科。

患者 2006年10月至2007年12月期間，被轉介至本院並同意參與研究的158名華籍乳癌患者，當中59名（37%）患者於私家醫院接受手術後獲轉介。

結果 總延遲時間（由出現症狀至治療時間）平均為22週。患者延診時間（由出現症狀至求診時間）平均為13週，也是構成總延遲時間的最大成因（60%）。出現症狀後，29%患者的個人延診時間和52%患者的總延遲時間皆超過12週。低家庭收入（即少於每月港幣5000；P<0.001）以及於公立醫院進行手術（P=0.013）都是患者延遲就醫的獨立預測因子；而只有於公立醫院進行手術（P=0.006）和低家庭收入（P=0.005）兩項依次屬於醫生／系統延遲和總延遲的預測因子。

結論 在香港，有乳癌症狀的患者延遲就醫和接受治療仍是一個重要問題。除了社會經濟因素，有限的公共衛生保健服務很可能是造成患者延遲就醫和醫生／系統延遲的重要因素。

Department of Clinical Oncology in the Pamela Youde Nethersole Eastern Hospital, which is one of the six regional public cancer centres in Hong Kong. Newly diagnosed female breast cancer patients referred to this centre over the study period were eligible if they were (1) Chinese residents of Hong Kong at the time of diagnosis, and (2) the time interval between first pathological diagnosis of breast cancer and the date of accrual was within 4 months. Patients with cognitive deficits that might preclude reliable recall of events and patients having difficulties in completing the questionnaires for educational or any other reasons were excluded. Participants were recruited when they attended doctors at the new case clinic. After obtaining the written informed consent, the self-administered questionnaires were distributed and collected within 2 weeks of accrual. Information about demographic data, nature of first symptoms, pursuit of medical help, prior health care status, beliefs, and practices was collected. The draft questionnaire (in traditional Chinese) had been tested on volunteers (breast cancer survivors) before finalisation of the design.

No cash or equivalent was offered to the participants. After obtaining approval from the Hospital Ethics Committee, patient accrual started in October 2006 and was completed in December 2007.

Statistical analyses

In this study, patient delay was defined as the time interval between the first symptom or sign of breast cancer recalled by the patient and the first visit to the doctor for these symptoms.[4] Doctor/system delay was defined as the time interval between the first clinic visit and the time of definitive treatment or biopsy, if this was the only intervention.[5] Total delay was defined as the interval between the first symptom and treatment (ie summation of patient's delay and doctor's delay). Independent sample *t* tests were used to test the association of demographic or clinical factors with the length of delay. One-way analysis of variance (ANOVA) tests between groups were used to evaluate interactions between multiple potential factors and the length of delay. The Statistical Package for the Social Sciences (Windows version 12; SPSS Inc, Chicago [IL], US) was used for statistical analysis; all tests being two-sided and a probability of 0.05 or below was regarded as clinically significant.

Results

Between October 2006 and December 2007, 179 consecutive patients fulfilling the study criteria gave consent and successfully returned the self-administered questionnaires. On review, 18 patients were found to have no symptomatic lesions (ie tumours were first detected by screening mammography or incidental clinical examinations) and were therefore excluded from further analysis. Three patients had excessive missing data in their questionnaires and were also excluded. Finally, 158 patients were included in the statistical analysis.

The demographic and clinical data of these 158 Chinese breast cancer patients are summarised in Table 1. The clinical features and distribution of these tumours were similar to previous local reports.[6] Breast lumps were the first presenting symptoms in 87% of patients and 59 (37%) of the patients were referred after having surgery in the private sector.

The time spent seeking medical treatment at various stages is summarised in Table 2. The mean total delay (from first symptom to treatment) was 21.7 weeks. The mean patient delay (from first symptom to first consultation) was 13.1 weeks and constituted the largest component (60%) of the total delay. Overall, 29% and 52% of the patients experienced patient delays and total delays exceeding 12 weeks, respectively. Patients with earlier disease stages (stage II or below) tended to have shorter patient delays than those with higher disease stages (stage III or above) but the difference failed to reach statistical significance (11 vs 19 weeks; P=0.117).

The potential demographic and clinical factors possibly associated with longer delays in different phases were analysed and the results are summarised in Table 3. The interactions between factors with P value of less than 0.1 were further tested by ANOVA (Table 4). Low family income (P<0.001) and surgery in a public hospital (P=0.013) were both independent factors predictive of patient delay. Surgery in public hospitals (P=0.006) and low family income (P=0.005)

TABLE 1. Demographic and clinical data of 158 Chinese patients with symptomatic breast cancer

Characteristic	Data*
Age (years)	
Median	48
Range	27-82
Marital status	
Single	25 (16)
Married	116 (73)
Divorced/widowed	17 (11)
Educational level	
Primary or below	39 (25)
Secondary	96 (61)
Tertiary	23 (15)
Working status	
Working	71 (45)
Not working (housewife, retired etc)	87 (55)
Total monthly family income (HK$)	
<5000/public assistance	18 (11)
5000-15 000	56 (35)
>15 000-25 000	38 (24)
>25 000	33 (21)
Not applicable/missing data	13 (8)
Religion	
Nil	75 (47)
Catholic/Christian	22 (14)
Buddhism	29 (18)
Others	32 (20)
Family history of cancer	
Yes	80 (51)
No	76 (48)
Missing	2 (1)
Subjective feeling of past health	
Good to excellent	88 (56)
Fair	64 (41)
Poor to very poor	5 (3)
Missing	1 (1)
Prior breast self-examination	
Yes	45 (28)
No	113 (72)
Prior screening mammography	
Yes	22 (14)
No	136 (86)
Presenting symptoms	
Breast lump	138 (87)
Nipple discharge	13 (8)
Other symptoms	7 (4)
Disease stage[†]	
Stage 0/I/II	126 (80)
Stage III/IV	32 (20)
Venue of breast surgery	
Public hospital	99 (63)
Private hospital	59 (37)

* Data are shown as No. (%) of patients, unless otherwise stated

[†] Based on International Union Against Cancer (UICC) classification, 2002 edition

TABLE 2. Mean duration of different phases in seeking medical treatment in 158 symptomatic breast cancer patients

Phase	Duration (weeks), mean ± SE*	Range (weeks)
Patient delay (from first symptom to first consultation)	13.1 ± 1.6	0 - 104.3
Doctor/system delay (from first consultation to treatment)	8.7 ± 1.2	0.4 - 143.1
Total delay (from first symptom to treatment)	21.7 ± 1.9	1.0 - 151.4

* SE denotes standard error

TABLE 3. Potential predictors of treatment delay in 158 symptomatic breast cancer patients

Factor	P value		
	Patient delay	Doctor/system delay	Total delay
Age >50 years	0.081	0.748	0.103
Monthly income <HK$5000	0.094	0.971	0.032
Treatment in public hospitals	0.006	0.006	<0.001
No prior cancer screening	0.107	0.205	<0.001
Not working	0.471	0.132	0.119
Single/divorced/widowed	0.143	0.672	0.346
Primary education or below	0.147	0.721	0.209
No religious belief	0.744	0.721	0.964
Absence of family history of cancer	0.491	0.729	0.726
Present with breast lumps	0.679	0.230	0.244

TABLE 4. Interaction of potential predictors of treatment delay using one-way analysis of variance

Factor	P value	
	Patient delay	Total delay
Age >50 years	0.630	-
Treatment in public hospitals	0.013	0.091
Monthly income <HK$5000	<0.001	0.005
No prior cancer screening	-	0.152

were the only predictors for doctor/system delays and total delays, respectively.

Discussion

Studies conducted in the United Kingdom reported that 32% of breast cancer patients had symptoms for 12 or more weeks before their first hospital visit.[3] In the United States, although the majority of women sought medical attention within 2 weeks of a self-detected breast lump, up to 34% of women delayed consultation for 3 months or longer.[7] Despite the cultural differences and a lower general cancer awareness in the Chinese population,[8] in our study the delay up to the first medical consultation was quite similar.

There are two principal reasons why patients delay seeking medical attention, namely 'optimistic bias'[9] or 'defensive bias', which lead to psychological minimisation of threat[10] and immobilisation by fear, embarrassment, or denial after recognising the seriousness of the symptoms.[9,11] Patient delay (as commonly defined) actually consists of three phases: symptom appraisal, action appraisal, and clinic appointment waiting time.[12] It can be quite misleading to attribute all the above delays to the patients themselves, if their access to local health care is limited.

Our statistical analysis showed that low family income and treatment in public hospitals were both independent predictors of significant patient delay in Hong Kong. Whilst patients of lower socio-economic class might have less health awareness and suboptimal family support, according to our experience, limited access to public health care might also be an important contributing factor. In Hong Kong, public health care is largely supported by government funding; the allocation is only around 2.7% of the Gross Domestic Product. Since most Hong Kong citizens are not covered by medical insurance, and very often cannot afford treatment in the private sector, many patients may have to face long waits for the first clinic consultation even after they decide to seek medical attention for their symptoms.

Even after initial medical consultation, in this study having surgery in public hospitals (in contrast to private hospitals) remained a predictor of doctor/system delay. This may reflect the relatively longer waiting times for diagnostic workup, including mammography and pathological diagnosis, and waiting times for definitive surgery. To speed up the process, patients might be advised to undergo mammographic evaluation in the private sector. Patients in a more favourable financial situation might even turn to private surgeons for an earlier operation. Since low family income patients cannot afford to have even a part of their medical workup or surgery in the private sector, not surprisingly it was highly predictive of a prolonged total delay in Hong Kong. Breast cancer patients with total delays of 3 months or more are reported to have significantly lower 5-year survival than those subject to shorter delays.[3] In this context, up to 52% of patients in this study experienced total delays exceeding 12 weeks, for which reason efforts to reduce this delay are urgently needed.

The systematic review by Ramirez et al[4] clearly showed the difficulties in carrying out high-quality studies in this field. Our study also suffered from major limitations. First, it is impractical to undertake a prospective study to evaluate the delayed presentation of breast cancer patients; a retrospective design is the only reasonable alternative. The reliability of these data depended on patient recall that obviously introduces errors, especially if the events in question occurred a long time ago. We tried to minimise this effect by limiting the interval between first pathological diagnosis of breast cancer and the date of accrual of participants to be less than 4 months. Second, all data in the questionnaire were provided by self-reporting. Patients who endured long delays before seeking help might have tended to underreport their delays or feelings out of shame or embarrassment.[13] Third, a proportion of the patients might have had excessive delays related to their old age or psychosocial problems. The latter patients often either refused to participate in this study or were deemed unsuitable, thus introducing a selection bias. Therefore in this study, the actual delay in presentation was probably an underestimate. Moreover, whilst our quantitative approach can provide an overview of this clinical issue in Hong Kong, further exploration of complex psychosocial factors requires qualitative approaches (eg semi-structured interviews) in future research.

To conclude, a high proportion of symptomatic breast cancer patients in Hong Kong endure substantial delay at different stages in the course of seeking medical treatment. Apart from the various socio-economic factors, limited access to public health care is probably an important contributing factor, which affects patients from low-income families most. Further studies are needed to address the relative importance of various components in the treatment seeking process of breast cancer patients, including those deemed unfit for conventional study.

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