RESEARCH ARTICLE

Knowledge, Attitudes, and Preventive Practice Towards Breast Cancer among General Practitioner Health Professionals in Morocco

Naima Abda[1]*, Adil Najdi[2], Samira El Fakir[2], Nabil Tachfouti[2], Mohamed Berraho[2], Youssef Chami Khazraji[3], Loubna Abousselham[4], Latifa Belakhel[5], Rachid Bekkali[3], Chakib Nejjari[2]

Abstract

Background: Breast cancer is the most common cancer of women in Morocco and its diagnosis is usually made at advanced stages. The aim of this study was to describe the knowledge, practices and attitudes of general practitioners regarding early detection of breast cancer. **Methods:** A cross-sectional study was carried out during July 2011 on a sample of 140 general practitioners employed in basic health care facilities. **Results:** The majority (85.7%) of general practitioners were aware of the existence of a ministerial circular which aimed to generalize breast cancer screening. Systematic practice of clinical breast examination was reported by 18.0% of doctors for every woman between 45 and 70 years and a systematic breast self-examination check-up was reported by 59.4% of physicians. Mammography was requested by 54.1% of physicians in the presence of risk factors. Females and physicians practicing in urban areas were less likely to have a knowledge, attitudes and practices score higher than 8 as compared to male physicians and those practicing in rural areas. **Discussion and conclusion:** Our study showed that the knowledge, attitudes and practices of general practitioners regarding the early detection of breast cancer program were not satisfactory; hence the urgent need for improved implementation of the program in the affected regions.

Keywords: Breast cancer- knowledge- attitude- practices- general practitioners

Introduction

Breast cancer is the most common cancer among women, especially in developed countries (Yu et al., 2012). It is estimated that there are over one million new cases per year worldwide (22% of all cancers diagnosed among women) (Belaid et al., 2010; Varughese and Richman, 2010). One in 18 women developed breast cancer between birth and age 79 years (Global Burden of Disease Cancer Collaboration et al., 2015). Breast cancer causes 14% of women's cancer deaths, more than 370,000 deaths per year around the world (Althuis et al., 2005). Incidence of breast cancer is 4 to 10 times higher in Western countries (mainly in the United States and northern Europe) in comparison to Asia and Africa (Rochefort et al., 2008).

In developing countries, more than 70% of breast cancers are diagnosed at stages III and IV and the median survival after diagnosis is less than five years (Mamane et al., 2012; Unger-Saldaña, 2014).

In Morocco, cancer has become a major health problem requiring a comprehensive policy management. According to the 2012 updated versions of the RCRC (Registre des Cancers de la Region du Grand Casablanca) and RCR (Registre des Cancers de Rabat) registry, breast cancer is the most common cancer among women with a standardized incidence estimated at f 39.9 and 49.2 per 100, 000 women, respectively and more than 60% cases are diagnosed at late stages (stage III and IV) (El Fakir et al., 2015; Slaoui et al., 2014).

Early detection could reduce the proportion of cancers with a late diagnosis and it is associated with a better chance of long-term survival (Desjeux et al., 2008; El Fakir et al., 2015). Common methods for breast cancer screening are: mammography, clinical breast examination (CBE) and breast self-examination (BSE) (Desjeux et al., 2008; El Fakir et al., 2015). Owing to their simplicity and economic efficiency, CBE and BSE are likely suitable to be introduced in low and middle income countries (LMC) (Mamane et al., 2012; El Fakir et al., 2015).

A Moroccan National Cancer Prevention and Control

[1]Department of Epidemiology and Public Health, Faculty of Medicine and Pharmacy, University Mohammed Premier, Oujda, [2]Department of Epidemiology and Public Health, Faculty of Medicine, University Sidi Mohammed Ben Abdellah, Fez, [3]Foundation Lalla Salma Prevention and Treatment of Cancers, [4]Directory of Population, [5]Directory of Epidemiology and Fight Against Diseases (DELM), Ministry of Health, Rabat, Morocco. *For correspondence: abda.naima@yahoo.com

Plan (2010-219) (NCPCP) has been established with the objective to reduce the cancer prevalence and the mortality rate, and to improve the patients' quality of life as well as that of their relatives. One of the most important measures of this plan is early detection for breast cancer. This program aims to cover women aged between 45 and 70 years and it is based on clinical breast examination at primary health facilities, mammography at secondary level and treatment at tertiary level (Fondation Lalla Salma Prevention and Treatment of Cancers., 2010).

The general practitioner is considered as a major actor in cancer prevention, whether primary or secondary (screening) (Ganry and Boche, 2005; Zine et al., 2016). Several studies have shown that women's adherence to breast cancer screening depends in a significant way on the attitude of their doctors (Price et al., 2010; Somanchi et al., 2010; Wang et al., 2009). Indeed, the level of knowledge, attitudes and practices of GPs regarding breast cancer and her screening are important factors for being an effective actor in any disease control program (Zine et al., 2016).

The aim of this study was to describe the knowledge, practices and attitudes of general practitioners in the early detection of breast cancer in Morocco.

Materials and Methods

A cross-sectional study was carried out during July 2011 on a representative sample of general practitioners carrying out in basic health care facilities as well as the reproductive health centers located in the following cities: Tangier, Nador, Beni Mellal and Taounate. In the selected areas the implementation of the early detection breast cancer program is not yet achieved. For each district, one health care center out of three was randomly selected in addition to referral to be included in the study. A total of 140 GPs participated in the study, 58 in Tangier, 36 in Taounate, 24 in Beni Mellal and 22 in Nador.

Data had been collected using self-administered standardized questionnaires delivered to each participating general practitioners.

The content of the questionnaire was as follow:
• Demographic data: age, gender, years of experience
•General knowledge and practice of cancer prevention (risk factors, screening…)
• Knowledge about the ministerial circular and perception of the breast cancer screening program
• Knowledge and practice of breast cancer prevention;
• Clinical breast examination and mammography use for breast cancer screening;
• Attitude towards women at risk
• Presence of a system of monitoring and evaluation of screening for breast cancer.

All variables were summarized using descriptive statistics. Qualitative variables were described in terms of proportions and quantitative variables were described in terms of average, extreme values and standard deviation.

For data analysis, a Knowledge, Attitudes and Practices (KAP) score was computed based on a model used in Niamey (Niger in 2010) regarding health professional other than physicians and their attitude toward breast cancer (Mamane et al., 2012). Our questionnaire contained similar questions to those of Niamey, which allowed us to calculate a similar score. In our study, each correct answer to a question equaled 1 point (Table 1).

On the basis of responses, we decided to dichotomize the score threshold of 8. Scores above 8 were considered as good scores. Variables associated with a good score in univariate analysis with a p value < 0,25 were included in a step-wise multiple logistic regression analysis. Adjusted odds ratio (OR) and 95% confidence interval (CI) were calculated. Significance was attributed to a probability of p<0.05.

The statistical analysis was carried out using the SPSS software v. 17.

Results

A total of 140 GPs participated in the study; the mean age of physicians was 41.1 ± 9.4 years and 52.9% of them were male. Almost two thirds (62.1%) of them worked in urban areas and 41.4% worked in the district of Tangier. The mean seniority of GPs at public service was 11.59 ± 7.60 years.

Monitoring training on the prevention of cancer was reported by 29.7% of physicians, and they tended to focus on breast cancer (87.5%).

Concerning the knowledge of GPs, the majority (85.7%) of them knew the existence of a ministerial circular which aimed to generalize breast cancer screening in the basic health care centers. The main breast cancer risk factors reported by mostly of physicians were: family history of breast cancer, nulliparity, age, contraceptive use, history of benign breast tumors and age at first pregnancy ≥ 30 years. A majority (90.6%) of physicians believed that breastfeeding is a protective factor, but a small minority (4.3%) thought it was a risk factor. A majority (88.6%) of physicians also strongly agreed that breast cancer is a public health problem in Morocco and 11.4% somewhat agreed.

Regarding the attitude towards screening tools and early detection, 99.3% of physicians agreed with the importance of self-examination for early diagnosis of breast cancer. Clinical breast examination was also considered important for the early diagnosis of breast cancer by 99.3%. Concerning mammography, the majority (88.6%) of physicians were entirely consistent with its relevance for the detection of breast cancer.

Systematic practice of clinical breast examination was reported by 18.0% of doctors for every woman between 45 and 70 years, and more than half of the doctors in case of a family history of breast cancer, mastodynia and in patients with a history of benign breast tumors (56.1%, 53.6% and 63.0% respectively).

Systematic breast self-examination check-up was reported by 59.4% of physicians. Mammography was requested by 54.1% of physicians for patients with risk factors and by 36.3% of physicians in case of a breast nodule.

Among the physicians surveyed, 52 (37.14%) had a score at least equal to K.A.P 8. Univariate analysis showed that male physicians had a KAP score better than women (44.6% of men had a score> 8 versus 28.8% among

Table 1. Variables Used to Calculate the Score of KAP among Gps. Morocco, 2012

Knowledge	Correct answers (1 point for each correct answer)
1. To your knowledge is there a ministerial circular, which aims widespread screening for breast cancer in basic health care establishments?	Yes
2. Do you think the following are risk factors for breast cancer? (Knowledge of at least 8 factors was considered correct answer	Age Family history of breast cancer Age at first pregnancy ≥ 30 years Nulliparity Early age at menarche (≤ 12 years) Breast-feeding Late menopause (age ≥ 55 years) Hormone replacement therapy (HRT) for menopause Mastodynia History of benign breast tumors Oral contraceptive use Injectable Contraceptive use Obesity Overweight Physical Inactivity Tobacco use
3. Breast cancer is a public health problem in Morocco	Strongly agree
Attitudes	
4. Breast self-examination is important for early diagnosis of breast cancer	Strongly agree
5. Clinical breast examination is important for early diagnosis of breast cancer	Strongly agree
6. Mammography screening is important for breast cancer	Strongly agree
Practices	
7. Do you practice clinical breast examination in your daily activities in the following cases (the practical examination for at least 6 out of 12 was considered good)	Any woman Women aged between 45 and 70 years Women at childbearing age Family history of breast cancer Age at first pregnancy≥ 30 years Nulliparity Early age at menarche (≤ 12 years) Late menopause (age ≥ 55 years) Obesity Mastodynia History of benign breast tumors Oral contraceptives use
8. If you do not practice the clinical breast exam, why?	Inadequate training Lack of privacy respecting space Lack of examination rooms
9. Do you advise your patients to self-examination?	Systematically
10. In what cases do you ask your patients a mammogram?	In case of breast nodule

GPs, general practitioner; KAP, knowledge, attitudes and practices.

women. Similarly, physicians practicing in rural areas had a higher score than those working in urban areas (54.0% versus 28.7%). However, the univariate analysis showed no association between age and KAP score of physicians even though the proportion of doctors with good score was higher among physicians younger than 35 years. On seniority in the civil service, it was found that there was a downward trend in the proportion of physicians with a good KAP score with increasing seniority in the public service, but this association was not significant ($p = 0.085$)

Multivariate analysis showed that female physicians (OR = 0.39, 95% CI [0.18 to 0.83]) were less likely to have a score higher than 8 as those of male physicians

by adjusting the place of exercise. Similarly, physicians practicing in rural areas had a higher probability of having a score greater than 8 than those engaged in urban areas (OR = 3.51, 95% CI = [1.63 to 7.59]) adjusting on sex (Table 2).

Discussion

Breast cancer is the most common, but also the leading cause of cancer death among women worldwide (Hortobagyi et al., 2005). Screening and early detection of breast cancer is crucial for early treatment and reduction of mortality (Ceber et al., 2010; Unger-Saldaña, 2014). In

Table 2. Knowledge, Attitudes and Practices of General Practitioners on Breast Cancer. Morocco 2012, N=140

	Mean (SD)	Univariate analysis		Multivariate analysis		
		Score > 8 n (%)	p	OR	IC 95 %	p
Gender			0.053			0.014
Man	7.1 (1.2)	33 (44.6)		1		
Woman	6.8 (1.2)	19 (28.8)		0.39	[0.18-0.83]	
Age			0.299			
26-35	7.3 (1.2)	21 (46.7)				
36-45	6.8 (1.3)	15 (31.3)				
> 45	6.9 (1.2)	16 (36.4)				
Area of practice			0.003			0.001
Urban	6.9 (1.1)	25 (28.7)		1		
Rural	7.3 (1.4)	27 (54.0)		3.51	[1.63-7.59]	
Seniority in public service (years)			0.085			
1-8	7.2 (1.2)	23 (46.0)				
9-14	7.1 (1.4)	18 (42.9)				
> 14	6.7 (1.0)	11 (25.0)				

Morocco, according to the NCPCP, screening for breast cancer is a priority in the fight against cancer, so it is essential to promote public awareness regarding cancer and early detection.

This study showed that GPs were knowledgeable enough about breast cancer and early detection methods. The majority (85.7%) of GPs knew the existence of a ministerial circular about breast cancer screening. This percentage is higher than that observed in the study conducted by Zine et al (Zine et al., 2016), this difference can be explained by the fact that this study was conducted in both and private sector and the low level of knowledge was observed in the private sector which was lacking in our study. The most known risk factor was the family history of breast cancer (93.6%), followed by breastfeeding, which was considered by 90.6% of physicians as a protective factor. These results are similar to those seen in other studies (Bekker et al., 1999; Ghanem et al., 2011; Kumar et al., 2009).

Although majority knew enough about breast cancer and early detection, this was not evident from their attitude and practices as overall the systematic practice of CBE was reported by only 18.0% of doctors for every woman between 45 and 70 years and more than half of the doctors in case of a family history of breast cancer, mastodynia and benign breast tumors history (56.1%, 53.6% and 63.0% respectively). More than half of the GPs (54.1%) requested mammography for patients with risk factors and 36.6% of them in case of presence of a breast nodule. The systematic BSE was reported by 59.4% of physicians. By comparing our results with those of Ganry et al, we found that the level of physician practices was low in our sample; in fact, in the study of Ganry and Boche (2005), 90% of doctors prescribe a mammogram before 50 year olds in the absence of risk factors, 30% continue this requirement after the age of 75 without formally giving a specific age to stop. Almost all physicians reported using the CBE

and almost all recommend BSE as a screening tool. This deficiency observed in our sample could be explained by the fact that the program of screening for breast cancer is not yet operational in areas where the study was conducted and by the fact that GPs have some difficulties like lack of time, lack of expertise or non compliance of their patients. So our results underline the need for urgent implementation of this program in these regions.

The KAP score analysis showed that the level of knowledge and practices of general practitioners was lower among female physicians and among physicians carrying out in urban areas. These findings are not concordant with the report of a similar study among GPs in the province of Mohammedia (Zine et al., 2016) where the program of screening for breast cancer is already implemented. An explanation of the observed difference between GPs carrying out in rural and urban areas is the adherence of those who practice in rural area to the ministry of health recommendations and programs because of the difficulty of access to specialized health care for most people in rural areas.

Using a self-administered questionnaire has several limitations. The main limitation is related to the fact that it is a declarative study. In addition, the data we obtained are unchecked and it is likely, that there is a difference between what the doctors say he/she does, and what he/she actually does. However, our results are similar to those obtained from other studies, suggesting that the collected data are valid and interpretable (Ganry and Boche, 2005). Another limitation is that the study was conducted only among GPs; other health professionals have also an important role in the success of the Ministry of health programs, and screening programs in particular. So, evaluating the knowledge, attitudes and practices of other health professionals (particularly nurses and midwives) is also important. Indeed, several studies have been carried out among nurses, midwives and medical students (Hsairi

et al., 2003; Kumar et al., 2009; Mamane et al., 2012). Similarly, the generalization of the study to GPs working in secondary and tertiary level and in areas where the screening program of breast cancer is operational can help to make comparisons and to identify areas where performances are good and where modifications seem necessary.

Several studies have reported the insufficient teaching on the fight against cancers in Medical courses (Geller et al., 1999; Lee et al., 1998; Zapka et al., 2000). In fact, that teaching is not still very developed in the Faculties of Medicine in Morocco. No teaching of oncology is provided for undergraduate medical education. It is true that theoretical programs are currently quite busy and it would be difficult to increase the amount of time for oncology. However, it would be possible to reorganize the curriculum by avoiding its dilution in the various medical specialties and concentrate cancer teaching it in a single module. It would also be possible to better organize the practicum, offering an immersion in cancer services at the undergraduate medical studies, and trying to learn the practice of physical examination of the breasts.

Besides improving the training of medical students in the field of screening for breast cancer, it would be wise to build awareness of women toward the screening to ensure their adherence to these programs, to facilitate their access to these services, and thus improve the coverage of these services. The primary care physicians in the profession should also receive continuous training in listening, counseling and practice of clinical breast examination.

The results of this study showed that the knowledge and practices of general practitioners in the early detection of breast cancer program were not quite satisfactory, which can be a cause of the increased incidence of breast cancer diagnosed at advanced stages, hence the urgent need for implementation of the program in these four regions. And since for GPs play an important role in the success of screening programs, it is necessary to implement measures to improve physician knowledge regarding early cancer detection. It is likely that the best time to improve the knowledge of GPs, outside the training during medical school, is in continuing medical training. This possibility seems relevant, especially since only 29.7% of GPs who responded to our survey had attended training sessions on cancer prevention. It is also important to sensitize the Moroccan community, especially women about the importance of breast self-examination in the early diagnosis of breast cancer by organizing awareness campaigns, especially in areas where the incidence is highest.

Statement conflict of Interest

The authors declare that they have no competing interests.

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