Rethinking: Ideal Screening Age for Breast Cancer in Developing Countries

Yeniden değerlendirme: Gelişmekte olan ülkelerde Meme Kanseri için İdeal Tarama Yaşı

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ABSTRACT

Objective: The aim is to identify the ideal screening age for women in developing countries and to determine the suitable method for early detection of breast cancer based on age and readiness of the community.

Materials and Methods: A 30-year retrospective review (from 1984 to 2014) was undertaken at King Fahd Hospital of the University, Al-Khobar, Saudi Arabia. Medical records of those diagnosed with breast cancer from the outpatient department and hospital admission records were reviewed, focusing mainly on demographic data, age, and time at presentation. Radiological and histopathological records were also reviewed for confirmation of diagnosis. Age-based statistical review was undertaken of the female population within the hospital catchment area.

Results: The total number of patients was 1.832, accounting for 0.8% affected patients when plotted against the 235,339 females within the catchment area. Considering the standard screening age of 40 years, patients were divided into two groups: group I included those below the age of 40 years at the time of diagnosis, accounting for 641patients (35%), and group II included those above the age of 40 years, accounting for 1191 patients (65%). Group I patients were mostly reassured in primary healthcare centers, diagnostic modalities were used with reservation, relying solely on ultrasonography 276 (43%); whereas in group II patients, mammography was used liberally, which aided in the diagnosis in all 1191 (100%).

Conclusion: Despite the undisputable notion that breast cancer has higher predilection for women above the age of 40 years, there is a substantial subset of affected younger women in developing countries, which contradicts this concept. However, the scarcity of structured sessions in developing countries dictates Western-based early detection strategies, but the validity of such programs is culture-governed. Rigorously tailored screening programs directed towards individual communities are mandatory. Reducing the screening age by a decade in developing countries may increase the capture of early breast cancer and improve the outcomes.

Keywords: Breast cancer, awareness, screening

ÖZ

Amaç: Bu çalışmada gelişmekte olan ülkelerde kadınlardaki ideal tarama yaşının saptanması ve yaşa ve toplumun uygunluğuna göre meme kanserinin erken tanısı için kullanılacak uygun yöntemin belirlenmesi amaçlanmıştır.

Yöntem ve Gereçler: King Fahd Üniversite Hastanesi, Al-Khobar, Suudi Arabistan'da 30 yıllık restrospektif bir tarama yapıldı (1984 - 2014). Hastane tıbbi kayıtlarından meme kanseri tanısı almış olan hastalar bulunarak demografik veriler, yaş, ve tanı zamanı sorgulandı. Radyolojik ve histopatolojik kayıtlar tanı doğrulaması amacıyla gözden geçirildi. Hastane erişim alanındaki kadın nüfus üzerine yaşa-dayalı istatistiksel inceleme yapıldı.

Bulgular: Erişim alanındaki 235,339 kadın içinde saptanan toplam hasta sayısı 1,83, ile %0.8'e denk gelmekteydi. Standart tarama yaşını 40 yaş olarak kabul ederek hastalar iki gruba bölündü: Grup I tanı anında 40 yaşın altında olan 641 hastayı (%35), Grup II ise 40 yaşın üzerinde olan 1191 (%65) hastayı kapsamaktaydı.

Grup I'deki hastalar daha çok sağlık merkezlerinde değerlendirilmişti, tanı yöntemleri kısıtlı olarak kullanılmıştı ve sadece ultrasonografiye dayalı 276 (%43) tanı vardı. Buna karşılık, Grup II hastalarda mamografi yoğun olarak kullanılmış, 1191 (%100) hastanın tümünde tanıya katkıda bulunmuştu.

Sonuç: Her ne kadar 40 yaş üzeri kadınlarda meme kanseri eğilimi tartışmasız bir şekilde artmış olmakla birlikte, bu kavramla çelişkili bir şekilde gelişmekte olan ülkelerde ciddi oranda genç kadın hasta grubu bulunmaktadır. Gelişmekte olan ülkelerin kendilerine ait programları olmaması nedeniyle Batı-kaynaklı erken tarama stratejileri kullanılmaktadır, ancak bu programların geçerliliği kültüre bağlıdır. Bireysel olarak topluluklara yönelik ve o topluluklar için özel olarak hazırlanmış tarama programlarının kullanımı zorunludur. Gelişmekte olan ülkelerde tarama yaşının on yıl düşürülmesi erken meme kanseri yakalanmasını arttırarak sonuçların iyileşmesini sağlayabilir.

Anahtar sözcükler: Meme kanseri, farkındalık, tarama

Introduction

The scarcity of breast cancer screening programs and health education sessions in developing countries dictates Western-based early detection strategies. The validity of such programs is culture-governed as women carry the deep-rooted fear of the mutilated body image following the liberal offer of mastectomy for all breast cancer stages. This had led to resistance of knowledge and acted as a major obstacle to the success of screening programs.

Early detection programs, when focused on promoting breast preservation strategy, may be able to alleviate the fear and encourage active participation of women in our communities. Early detection impacts positively on reducing the burden on healthcare services. It has been

estimated that screening mammography yields reduction in mortality of 22% in women aged 50 years or older and 15% among women aged 40–49 years (1).

Despite the fact that, younger patients are affected by breast cancer in developing countries, no pilot screening programs have been designed for this subset of women. National breast screening programs have long been established and practiced in many countries around the world. Whether mammographic screening is cost-effective for all communities is yet to be determined. Community practice of screening may differ from the care provided within randomized clinical trials and is less often discussed in review articles (2).

In this review, we aim to identify the ideal screening age for women in developing countries and to determine the suitable method for early detection of breast cancer based on age and readiness of the community.

Materials and Methods

A 30-year retrospective review (from 1984 to 2014) was undertaken at King Fahd Hospital of the University, Al-Khobar City, Eastern Province of Saudi Arabia. Ethical committee approval was obtained for chart review. The aim of the study was to determine the best method for early detection of breast cancer based on age range, availability of resources, and readiness of the community.

All medical records of patients diagnosed with breast cancer from the outpatient department and hospital admission records were reviewed. Demographic data and time and age of presentation were included. Radiological and histopathological records were also reviewed for confirmation of diagnosis. Online statistical analysis program GraphPad Instatsoftware was used for data analysis (http://graphpad-instat.software.informer.com/3.1/). Age-based statistical review was undertaken of the female population of the Al-Khobar, representing residents of the institution catchment area. These records were obtained from the Ministry of Economy and Planning, Department of Statistics, and information reflecting the female population of Al-Khobar (3).

Results

The total number of patients diagnosed with breast cancer was 1.832 (0.8%) based on the 235,339 female population of Al-Khobar within the catchment area of King Fahd Hospital of the University over the last 30 years (Figure 1). Median age was 39 years (range 20–90 years).

In all, 1,319 (72%) were within the reproductive age group (i.e., between 20 and 50 years). All presented with self-discovered breast masses, and the median size at presentation was 3.8 cm (range 3.5–6 cm) in both groups.

The number of annual diagnosed cases had progressively increased 26-fold over the last 30 years, from the total number of 4 cases per year in 1984 to 107 cases per year in 2014 (Figure 2).

The disturbing age categorization of 641 patients (35%) below the age of 40 years (Figure 3) was also noted. These patients were mostly reassured at least once by the general physician, evaluated by clinical examination alone, other diagnostic modalities were used with reservation, relying solely on ultrasonography 276 (43%). Considering the international standard screening age above 40 years, 1191 patients (65%), supported by international guidelines, mammography was liberally used which aided in the diagnosis1191 (100%).
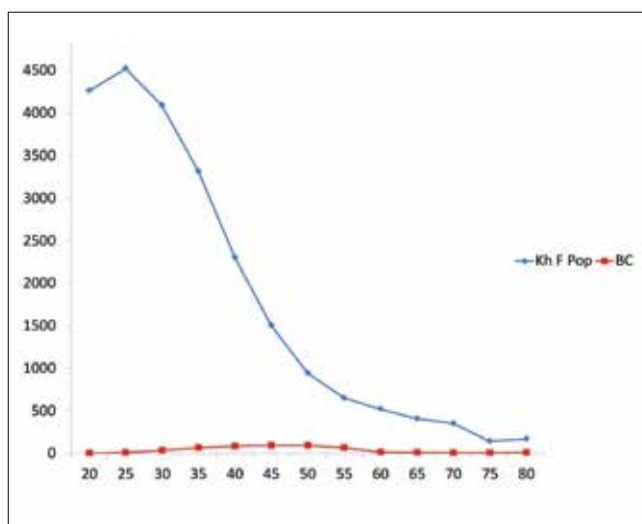

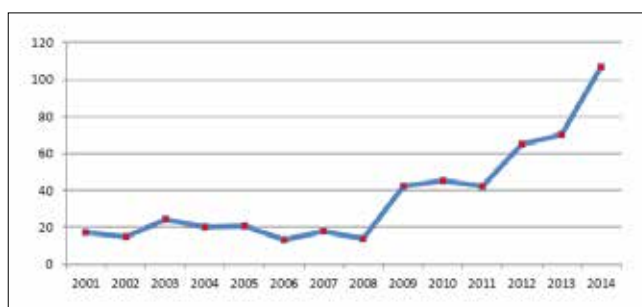**Figure 1**. Age based Female population of Alkhobar plotted against the age based breast cancer cases

Figure 2. Statistics obtained at KFHU showing the progressive rise of cases dianosed with Breast Cancer
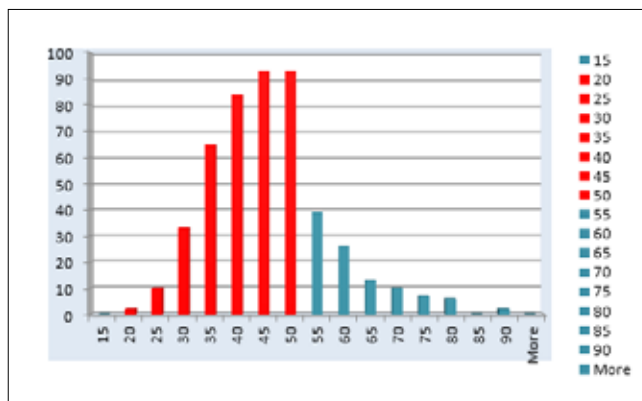

Figure 3. Demonstrates the majority of patients are within the reproductive age group

These figures are quite alarming; hence, 35% of the affected patients are outside the recommended target group for screening.

Discussion and Conclusions

Higher incidence of breast cancer rates have being reported from North America and Europe, while figures from the Middle East have been significantly lower. Breast cancer in this part of the world comprises the highest relative frequency rates of all cancer types compared to data from Western societies (4). Screening is widely accepted effective practice that aids in reducing the breast cancer morbidity and

mortality. However, it cannot be universally unified since it relies on community acceptance, which is governed by culture, education, and misconceptions.

Early detection of breast cancer improves outcome in a cost-effective manner, assuming treatment is available; but it requires public education to foster active patient participation in diagnosis and treatment (5).

Within the developing world, many personal, socio-cultural, and economic factors contribute to the delayed presentations. Understanding these barriers is crucial for optimizing interventions that preempt patient delay (6).

It is crucial to note that despite extensive theoretical literature review and frequently cited articles on screening, on the ground, the balance between the research production and the actual population benefits is tilted. Hence, breast cancer screening tends to emphasize the efficacy and results of randomized trials; in contrast, the effectiveness of programs is defined as the extent to which a specific intervention deployed in fulfilling its intent (7).

20 years review of screeing programs in developed countires has increased early cancer detection, yet the incidence of regional cancers has not decreased at a commensurate rate. This suggests that screening reveals more of low-risk cancers without significantly reducing the burden of more aggressively growing cancers, or reducing the overall cancer mortality (8-10).

Mammography as a screening tool in early detection of breast cancer is frequently challenged as its screening increases the recall rate and potentiates the anxiety of unnecessary invasive diagnostic procedures. In addition, its sensitivity limitation is encountered in women with prior breast surgery (9, 11).

Several reports have stated that screening mammography-detected malignant lesions are associated with a better prognosis than are those detected outside the screening, with a lower incidence of nodal or distant metastasis (12, 13).

Studies have reported that attendance for mammographic screening has decreased over time, which might be related to changes in invitation mode, deflection to the use of private options, or simply due to lower enthusiasm for mammography (9).

The earlier reported advanced carcinomas among non-attendees in service screening has started to change, an obvious shift toward less advanced disease in this group has been noted; this may indicate increased awareness of breast cancer and the ability to seek advice earlier (14, 15).

In this retrospective review, despite the observed increased number of cases seen in healthcare facilities, when plotted against the total age-based population, the incidence of the population affected with breast cancer over 30 years was only 0.8%. This number may appear trivial and may be not support the initiation of national screening program; however, the 26-fold increase in patients presenting to our institution should hearten the look into breast cancer awareness programs. Younger age and delayed presentation impact negatively on the community and exhaust the healthcare services.

Despite the fact breast cancer is emerging in younger females, there are few reports on breast cancer screening in younger age groups. Earlier studies have shown efforts to promote screening mammography have focused on women aged 50 years or 40 years with family history of breast cancer (8).

Many reports from the region have shown similar unfavorable presentations and outcomes. Hence, efforts are needed to increase breast cancer awareness for early detection in all age groups, and to target women living in areas with lower access to healthcare services (15). Policy recommendation for breast cancer screening should primarily address the eligible age group and the interval between subsequent screening tests (16, 17).

The recent introduction of magnetic resonance imaging (MRI) in aiding the diagnosis is exclusively reserved to certain categories, namely the high-risk group and women with increased breast density. Its utilization may shed some hope on diagnosing breast cancer in young females (18, 19).

The propagation of breast preservation by adopting breast conserving surgery in all types of cancers has appealed to many women making the efforts of screening programs plausible (20).

Early breast cancer detection and comprehensive cancer treatment play synergistic roles in facilitating improved breast cancer outcomes. The most fundamental interventions in early detection, diagnosis, surgery, radiation therapy, and drug therapy can be integrated and organized within existing health care schemes (19).

The current American Cancer Society Guidelines has included awareness as young as the age of 20 years with screening starting at the age of 40 years and at the age of 30 years for high-risk women (21).

Widespread screening may not be feasible, especially in developing countries; therefore, it may need to be started at an selected centers, city, or region, or by targeting screening to women at highest risk. To succeed, early detection efforts must include first-line healthcare providers (22).

This is a plausible notion which may be useful in developing countries where Focus Before Expansion: to avoid dilution of efforts.

Tailored approaches for health education, screening, early detection, and prevention should be considered in developing countries. It is important to design an intelligent and appealing strategy for screening. To implement a successful and effective program, it is of great importance to address the eligible age, background education, culture, readiness to participate, and availability of recourses.

Etik Kurul Onayı: Bu çalışma için etik kurul onayı alınmıştır.

Hasta Onamı: Çalışmanın retrospektif tasarımından dolayı hasta onamı alınmamıştır.

Hakem değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Fikir - M.A.H.; Tasarım- M.A.H.; Denetleme - M.A.H., H.A.W.; Veri toplanması ve/veya işlemesi - H.R., H.A.W.; Analiz ve/veya yorum - M.A.H., H.R.; Literatür taraması - M.A.H.; Yazıyı yazan - M.A.H.; Eleştirel İnceleme - M.A.H.

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