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Toplum Tabanlı Tarama Mamografilerinde Geri Çağırılan Hastaların Değerlendirilmesi

Assessment of Recalled Patients in Population Based Screening Mammography

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ÖZ

GİRİŞ ve AMAÇ: *İlimiz içerisindeki KETEM ikinci düzey merkezlerinden biri olan hastanemize geri çağrılma ile yönlendirilen hastaların bulgularının ikinci basamak merkezin bakış açısından değerlendirilmesi amaçlanmıştır.*

YÖNTEM ve GEREÇLER: *KETEM de mamografileri çekilen ve Ocak 2016- Ekim 2019 tarihleri arasında bölümümüze yönlendirilen hastalar çalışmaya dahil edildi. Rapor ve filmi getirme oranları,US-BIRADS kategorisi, true pozitif, false pozitif, positive prediktif değer (ppv) ve kanser saptama oranları değerlendirildi.*

BULGULAR: *Yaş ortalaması 52 olan 409 hastanın, %94,4 ünde filmleri görülmeden US incelemesi yapıldı. BIRADS 4-5 grubunda histopatolojik verilerine ulaşılan 21 hasta için Gerçek pozitiflik 16, yalancı pozitiflik 5, ppd 76% idi. Kanser saptama oranı 16/409 (Binde 39,1) idi. 4/16 minimal invaziv kanser saptama oranı idi. Malign kitle boyutu 7-40 mm arasında değişmekte idi. Malign tanı alan hastaların 9'unda memede sertlik, ele gelen kitle, ciltte çekinti gibi semptomlar mevcuttu.*

TARTIŞMA ve SONUÇ: *İkinci basamakta yaşanan öncelikli sorun mamografi filmleri görülmeden US yapılmasıdır. KETEM de sadece tarama amaçlı değil tanısal amaçlı da kullanılmaktadır. Bu nedenle saptanan kanser oranları tarama programlarından yüksek bulunmaktadır. Tarama programının işleyişinin ikinci basamakta da düzenlenmesine ihtiyaç duyulmaktadır.*

Anahtar Kelimeler: *tarama, mamografi, ultrasonografi*

ABSTRACT

INTRODUCTION: *This study assesses the results of patients referred by KETEM (Cancer Early Diagnosis Screening and Education Center) to our hospital as a result of a recall, providing the viewpoint of a secondary level center.*

METHODS: *The study included patients who underwent a mammography at KETEM and who were referred to our department through a recall between January 2016 and October 2019. The assessment parameters included the rates at which the patients bringing report and mammography images, US BIRADS category, true positives, false positives, ppv and cancer detection rates.*

RESULTS: *The average age of the 409 patients was 52 years. Of the patients, 94.4% underwent a US examination without previous access to mammography images. In the 21 BIRADS 4 and 5 patients with histopathological data, the true positivity rate was 16, the false positivity rate was 5, and PPV was 76%. The cancer detection rate was 16/409 (39.1‰); the detection rate for minimally invasive cancer was 4/16; the size of the malignant mass varied from 7 to 40 mm; and symptoms such as breast stiffness, palpable mass and skin retraction were noted in nine of the patients diagnosed with malignancy.*

DISCUSSION and CONCLUSION: *The main issue experienced at a secondary level is the need to perform US without first accessing mammography images. The approach is used not only for screening at KETEM, but also for diagnostic purposes, and so the rates of detected cancer are higher than from screening programs. There is a need to revise the functioning of screening programs also in secondary level.*

Keywords: *screening, mammography, ultrasonography*

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INTRODUCTION

Breast cancer is the second leading cause of cancer death and the most common non-skin-related cancer in women (1). Mammography is a screening method with proven efficacy, and breast cancer mortality rates have been shown to decrease due to screening programs (2).

In our country, community-based screening programs are conducted by Cancer Diagnosis, Screening and Education Centers (KETEMs). In a previous study based on data from the Turkish Atomic Energy Authority and Provincial Directorates of Health, it was reported in 2005 that 15 provinces had no mammography equipment, while today the number of KETEMs in the country is reported to be 197 (with a minimum 1 in every province) (3,4). Furthermore, attempts have been made to increase access to screening through a mobile mammography project. In the early years following the opening of screening centers, the radiologists in charge of the KETEMs were assigned on a provincial basis. Later, however, it was decided to make reporting from a single center and to notify the provincial centers, since hospital staff could not be assigned to KETEMs due to the insufficient number of radiologists and also the reorganization that was ushered in by law No. 663. In current practice, patients to be recalled upon reporting are referred to the Secondary Level centers designated in every province (4). KETEM data is reported regularly at a primary level, and records are provided as required, however the findings of patients referred to the provincial secondary level centers and the associated challenges have not been reported.

The present study assesses the findings of patients who were referred to our hospital, a KETEM secondary level center in our province, through a recall, from the viewpoint of a further examination centers.

METHODS

The study protocol was approved by the Ethics Committee. The study was conducted in accordance with the principles of the Declaration of Helsinki.

The study included all patients who had undergone a mammography at three different KETEMs in our province, and who were referred to our ultrasonography department through a recall following central reporting between January 2016 and October 2019.

Patients who underwent a mammography at centers other than KETEM, and who were referred to our department for US were excluded from the study.

Cases reported as BIRADS 0, 4 and 5 based on mass, asymmetric density or with suspected calcification, as identified in the mammography reports, were referred to our hospital for US examination and, if necessary, for a biopsy. Cases identified with BIRADS 1–2 based on mammography reports, in turn, were referred for a screening US in the presence of a dense breast pattern.

Prior to the US examination, the mammography images of the patients, if they had them with them on CD, were evaluated digitally. For the patients who did not bring their mammography CDs, a note was placed on their US reports indicating the lack of images. Likewise, patients who did not bring their mammography CDs or their mammography reports from KETEM were identified in their US reports.

All data was recorded after making a retrospective review of the US reports through the PACS system.

The resulting US reports were assessed based on the BIRADS criteria. Patients with BIRADS 4 and 5 underwent a biopsy, and their pathology results were recorded.

In order to evaluate US performance, true positive rate, false positive rate, positive predictive value (PPV), cancer detection rate and minimal cancer detection rate were assessed. PPV was calculated by dividing the true positive (TP) rate by the sum of the true and false positive (FP) rates (TP/TP+FP).

The minimal cancer detection rate was calculated by dividing the sum of DCIS cases and <1cm invasive cancer cases by all GP cases (The number of DCIS cases + <1cm invasive cancer cases / all GP cases) x 100.

RESULTS

The average age of the 409 patients undergoing US was 52 (min: 40, max: 73) years.

No mammography report was available during the US examination in 365 (89.2%) of the patients. Among the 44 reports present, 32 were BIRADS 0; three were BIRADS 1–2 and nine were BIRADS 4–5.

US examinations were carried out without first seeing mammography images in 386 (94.4%) of the patients.

Based on the US results, 25 patients were classified as BIRADS 0; 115 patients as BIRADS 1; 154 patients as BIRADS 2; 90 patients as BIRADS 3; 11 patients as BIRADS 4 and 14 patients as BIRADS 5. The distribution of lesions findings is presented in Table 1.

Table 1. Final BIRADS Categories of US Findings

US- BIRADS	Categories (n:409)
BI-RADS 0	25
BI-RADS 1	115
BI-RADS 2	154
Cyst	107
Mass	6
Lymph Node	39
Ductal secreation	2
BI-RADS 3	90
Asymmetric density	2
Ductal mass	2
Mass	84
Microcalcification	2
BI-RADS 4	11
BI-RADS 5	14

Among the 25 patients with BIRADS 0, it was determined that mammography images must be seen due to the normal findings of the US examination in 10, and that a breast MRI was recommended in 12. Of the patients that underwent an MRI, four were evaluated as BIRADS 2 and one as BIRADS 4. For the other seven patients for whom an MRI was recommended, the data could not be accessed.

Of the 25 patients classified as BIRADS 4 and 5, four had no other data in the hospital system, and so the data of the remaining 21 was assessed. Of these patients, eight were diagnosed with invasive carcinoma, five with ductal carcinoma, one with lobular carcinoma and two with DCIS. Furthermore, five patients were diagnosed with benignity based on the findings of a tru-cut biopsy, and a wire-marking excision was made in two of these patients who were diagnosed with benignity again.

The size of the malignant mass varied from 7–40 mm; the TP rate was 16, FP rate was 5 and PPV was 76%; the cancer detection rate was 16/409 (39.1‰); and the detection rate for minimally invasive cancer was 4/16 (Table 2). Symptoms such as breast stiffness, palpable masses and skin retractions were identified in nine of the patients diagnosed with malignancy.

Table 2. Outcome Values

BIRADS 4 and 5	(n:21)
TP	16
FP	5
TN	97
FN	1
PPV	76%
Cancer Detection Rate	39.1‰

Suspicious lymph nodes in the axillary lymph nodes were identified in two patients on US, although it was not possible to make any axillary lymph node involvement or cancer staging, as the pathology results were unavailable.

DISCUSSION

Population based screening mammography programs take two forms, being either opportunistic or organized, although the aim in both is to detect cancer early, before the manifestation of any clinical symptoms (5). Mammograms in KETEMs can be upon invitation or individual application.

In Turkey, KETEM screening mammograms were recommended for all women aged 50–69 in 2004, but this ranged was reduced to 40–69 in 2013. In the present study, the upper age limit was 73 (8 patients aged above 69), which indicates that the age range recommendations are not being followed.

The high rate (94.4%) of US examinations carried out without access to mammography images in the present study caused the secondary case center to be used for screening ultrasonography in patients with suspicious findings. Although the central reporting system evaluates the quality of images and has inappropriate ones repeated, US examinations are carried out substantially without any information on

the breast parenchymal density or dispersion, localization or type of the suspected finding that would be defined in a mammography examination.

The cancer detection rate in the present study was higher than that reported by Grabler et al., and also higher than the figure reported by Kayhan et al. in the first organized population based screening program in Turkey (39.1/‰, 5.2/‰ and 9.3/‰, respectively) (6,7). The high rate in the present study was attributed to the presentation of patients with such symptoms as palpable masses, swelling, retraction, etc. rather than for screening purposes.

The reporting time after undergoing a screening mammography, referral to a secondary level center for US, the performance of US at such center and establishing a diagnosis from a biopsy when required all lead to delays in the treatment process, with the delay between diagnosis and treatment reported as 14.8 weeks by Özmen et al., of which 10.5 weeks was found to be associated with the applied healthcare system (8). The use of KETEMs for purposes other than screening mammograms, such as for diagnostic purposes, may be a leading cause of the delays experienced in the healthcare system. Despite increasing number of screening centers in recent years, a significant part of patients were diagnosed at advanced stage (9).

In conclusion, the secondary level is very important for the identification and finalization of the suspected findings detected at the primary level of a screening program, and as such, the issues must first be identified if the problems experienced at this level are to be resolved.

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