Frequency of mammography use in women insured by the ISSSTE in an urban general hospital

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Abstract

Introduction: Breast cancer in Mexico is a major health concern. Since there is no precise information about mammography use in regular population of women insured by the Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado (ISSSTE), we carried out this study. **Materials and methods:** This was a cross-sectional study, where women insured by the ISSSTE who attended the Hospital General Tacuba at Mexico City were assessed. The study evaluated the regularity of mammography use, and whether this was accordingly to their demographic features. **Results:** Our sample was of 327 women between 40 and 69 years. There were 146 users (44.7%) of mammography during the past two years. Mammography using during the two previous years, by age group was: 40-49 years, 24.6%; 50-59 years, 59.5%, and 60-69 years, 50.49%. **Conclusions:** Our results suggest that in women insured by the ISSSTE of an urban city there are still challenges for the extensive use of mammography.

Key words: Breast neoplasms epidemiology. Breast neoplasms diagnostic imaging. Breast cancer. Cancer. Mammography. Mexico epidemiology.

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Introduction

In Mexico, the incidence of breast cancer is on the rise^{1,2}; since 2006, it has been the most common and lethal neoplasm in women older than 25 years^{2,3} and it affects younger women than those reported in Anglo-Saxon countries^{2,4}. Although mammography is the method of choice for breast cancer early detection^{5,6}, with its intrinsic limitations, in our country there are multiple barriers to its implementation⁷⁻⁹. In addition, each component of the health system in Mexico makes individual efforts to provide care to its respective beneficiaries¹⁰.

At the Institute of Social Security and Services for State Workers (ISSSTE – *Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado*), in 2010, with more than 10 million beneficiaries (active workers and pensioners, as well as their dependent relatives)¹¹, there is scarce information regarding the use of mammography by its female beneficiaries. Significantly, the 2007 ISSSTE National Beneficiary Health and Nutrition Survey (with a sample of > 11,000 individuals) did not assess the use of mammography by female beneficiaries¹². The sparse existing information derives from two studies whose samples were analyzed in 2001 and 2007^{13,14}. In the study by Pagan et al.¹³, individuals from various institutions of the health sector were studied, but they did not break down the number of ISSSTE beneficiaries included. In the second study, by Ortiz-Mendoza et al.¹⁴, they investigated users of a breast clinic, which is a subset of beneficiaries. Therefore, given that the information on the use of mammography by ISSSTE beneficiaries is scarce, in addition to not being updated, and that there have been changes in the Official Mexican Standard for breast cancer prevention, diagnosis and treatment, control and epidemiological surveillance (NOM-041-SSA2-2011)¹⁵, we decided to evaluate the patterns of mammography use in a sample of the general population of our hospital.

Material and methods

This was a study carried out between October 2015 and June 2016, previously approved by the institutional Research Committee (protocol 045/17).

Population

We evaluated female beneficiaries (active and pensioned workers, or their insured economic dependents) who attended any department of the Tacuba General Hospital in Mexico City. Participants were chosen by

means of a systematic non-probabilistic selection at the emergency waiting room, outpatient services, areas for scheduling appointments or from the clinical records department, and those visiting hospitalized relatives during the morning and evening shifts on business days. Regular users of the gynecology, breast clinic or oncology departments were excluded. The inclusion criteria were: beneficiary women of between 40 and 69 years of age who agreed to the interview and the assessment and who signed the informed consent.

All participants were subjected to an interview and anthropometric data recording. Weight was measured on a mechanical scale, with the patient barefoot; height was measured by means of a stadiometer integrated to the scale, with the patient barefoot. With the weight and height, we calculated the body mass index (with the formula: weight in kilograms divided by the squared height expressed in meters).

In addition, in the interview we obtained data on patient demographics, level of education, family history of breast cancer in first-degree relatives (mother, sister[s] or daughter[s]) and reproductive history such as age of menarche, first full-term pregnancy and number of pregnancies. With regard to mammography (analogue or digital), we inquired if they had ever had it practiced, frequency of use, if it occurred during the two years prior to the interview, place where it was performed and date of the last one.

Analysis

With the obtained information, we assessed if the use of mammography was related to demographic characteristics. We employed the statistical program OpenEpi, version 3 (www.openepi.com). With an approximate frequency of mammography use of $30 \pm 5\%$ (result of a previous investigation)¹⁴, we calculated the sample size with the equation: $n = [DEFF * Np (1 - p)] / [(d^2 / Z^2 (1 - \alpha/2 * (N - 1) + p * (1 - p))]$. All values were expressed in numbers and percentages.

Results

The calculated sample size, with a 95% confidence interval, was 323 individuals; however, we managed to study 327. Table 1 shows the detailed characteristics of the population.

Seventy women (21.4%) had never had a mammography practiced. Only in 135 cases (52%) the mammography had been performed at the ISSSTE. In 146 (44.7%) the test had been practiced during the previous two years (Table 1).

Table 1. Population characteristics (n = 327)

Characteristic	n (%)
Age	
60-69 years	53 (16.2)
50-59 years	148 (45.3)
40-49 years	126 (38.5)
Reproductive risk factors	
Menarche at < 12 years	68 (20.8)
1 st pregnancy at > 30 years of age	43 (13.1)
Nulliparous	30 (9.2)
1 st degree family history of breast cancer	17 (5.2)
Body mass index	
≥ 30	123 (37.6)
25-29.9	138 (42.2)
18.3-24.9	64 (19.6)
< 18.3	2 (0.6)
Level of education	
Postgraduate	10 (3)
College	100 (30.6)
High school	116 (35.5)
Secondary school	66 (20.2)
Primary school	33 (10.1)
Illiterate	2 (0.6)
History of mammography use	
Yes	257 (78.6%)
No	70 (21.4)
Mammography origin (n = 257)	
ISSSTE	135 (52.5)
Private	36 (14)
SSA	34 (13.2)
FUCAM	31 (12.1)
IMSS	12 (4.7)
Other	9 (3.5)

FUCAM (*Fundación de Cáncer de Mama*): Breast Cancer Foundation;
 IMSS (*Instituto Mexicano del Seguro Social*): Mexican Institute of Social Security;
 ISSSTE (*Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado*): Institute of Social Security and Services for State Workers;
 SSA: (*Secretaría de Salud*): Ministry of Health.

Table 2 shows the relationship between the use of mammography and the characteristics of the study subjects. The group that least used mammography was the 40-49 years' group.

Discussion

Our results show that in the ISSSTE beneficiaries general population the frequency of mammography use has increased, with regard to a previous study in users of a breast clinic (44.7% current use vs. 34% in 2007)¹⁴. However, women in the 40-49 years' age group continue to use mammography poorly¹⁴. Thus, while 1 in every 2 women aged 50 to 69 have undergone a mammography in the previous two years, only 1 in every 4 women aged 40 to 49 have used it. This data is significant, since

Table 2. Use of mammography during the previous two years according to population characteristics (n = 327)

Age	Users
60-69 years	50.9% (27/53)
50-59 years	59.5% (88/148)
40-49 years	24.6% (31/126)
1 st degree family history of breast cancer	100% (12/12)
No 1 st degree family history of breast cancer	100% (134/134)
1 st pregnancy > 30 years of age or nulliparous	100% (32/32)
No 1 st pregnancy > 30 years of age or with gestations	100% (114/114)
Basic education (primary to high school)	100% (92/92)
Higher education (college or postgraduate education)	100% (54/54)

breast cancer in Mexico occurs more frequently in young women^{2,4}.

Despite the above, our results are encouraging. Detecting that 78.6% already have a history of having undergone mammography sometime in their lives is positive. However, usage during the previous two years remains low in relation to women in Spain, Canada and the USA¹⁶⁻¹⁸. Not so in relation to a study on the use of mammography in several regions of Latin America, since our sample exceeded the frequency of its use¹⁹. There are published data that indicate that having some type of health insurance increases the possibility of having undergoing mammography^{19,20}, which is consistent with our results. Considering that 48% of the interviewed women did not obtain the mammography at ISSSTE, but from various sources (29.9% from other institutions of the public health sector and 14% from private services), that the 40-49 years' group continues to poorly use mammography, that 37.6% have obesity, which increases the risk for postmenopausal breast cancer, that a large group has high-risk reproductive factors for breast cancer (20.8% with early menarche, 9.2% are nulliparous and 13.1% have had pregnancies at > 30 years of age), our findings corroborate the persistent challenges to offer an accessible mammography service to our beneficiaries.

It is not clear which are obstacles to the use of mammography by our beneficiaries at ISSSTE; further research on the subject is required. There is suspicion of difficulties for obtaining leaves of absence at work to

attend medical services¹⁴. Or maybe it is due to a failure to offer the test by primary and secondary care doctors^{21,22}. Finally, we cannot rule out indolence by the beneficiaries for looking to have the mammography practiced.

We are aware of the limitations of this work. The analysis was using a single sample from a hospital that belongs to an urban area, which may not be representative of the entire population covered by the Institute. However, the sample size, its selection, the anthropometric and education level data and the consistency of these data with the information obtained from the 2007 ISSSTE National Beneficiary Health and Nutrition Survey¹¹, allow us to support the value of our research.

Finally, our study suggests that challenges linger in ISSSTE female beneficiaries for a widespread use of mammography.

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Conflict of interests

The authors declare not having any conflicts of interest.

Ethical responsibilities

Ethical standards for research in human subjects

The handling of research subjects was carried out in accordance with the Declaration of Helsinki latest version, the Guidelines for clinical and epidemiological research of the Council for International Organizations of Medical Sciences, the Code of Ethics of the World Medical Association, the Belmont Report, the Good Clinical Practice guidelines, the Federal Law on Protection of Personal Data Held by Private Parties and the General Statute of Health.

Informed consent

All patients were required to grant informed consent.

References

1. Estadísticas de mortalidad relacionada con salud reproductiva. México, 2002. Salud Publica Mex. 2004;46:75-88.
2. Perfil epidemiológico de los tumores malignos en México [Internet]. México: Secretaría de Salud [consultado el 7 de septiembre de 2018]. Disponible en: <http://docplayer.es/11449544-Perfil-epidemiologico-de-los-tumores-malignos-en-mexico.html>
3. Cárdenas SJ, Bargalló RE, Erazo VA, Maafs ME, Poitevin CA, coord. Consenso Mexicano sobre diagnóstico y tratamiento del cáncer mamario. Sexta revisión. Colima 2015. México: Masson Doyma México; 2015.
4. Rodríguez-Cuevas S, Macías CG, Franceschi D, Labastida S. Breast carcinoma presents a decade earlier in Mexican women than in women in the United States or European countries. Cancer. 2001;91:863-8.
5. Breen N, Gentleman JF, Schiller JS. Update on mammography trends: comparisons of rates in 2000, 2005, and 2008. Cancer. 2011;117:2209-18.
6. Masuet C, Sécull E, Brugulat P, Tresserras R. La práctica de la mamografía preventiva en Cataluña. Un paso adelante. Gac Sanit. 2004;18:321-5.
7. Brandan ME, Villaseñor-Navarro Y. Detección del cáncer de mama: estado de la mamografía en México. Cancerología. 2006;1:147-62.
8. Mohar A, Bargalló E, Ramírez MT, Lara F, Beltrán-Ortega A. Recursos disponibles para el tratamiento del cáncer de mama en México. Salud Publica Mex. 2009;51:S263-9.
9. Knaut FM, Nigenda G, Lozano R, Arreola-Ornelas H, Langer A, Frenk J. Cáncer de mama en México: una prioridad apremiante. Salud Publica Mex. 2009;51(Supl 2):S335-44.
10. Gómez-Dantés O, Sesma S, Becerril VM, Knaut FM, Arreola H, Frenk J. Sistema de salud de México. Salud Publica Mex. 2011;53(Supl 2):S220-32.
11. Población derechohabiente del ISSSTE [Internet]. México: INEGI [consultado el 14 de noviembre de 2018]. Disponible en: <https://www.inegi.org.mx/temas/derechohabiencia>
12. Encuesta Nacional de Salud y Nutrición del Derechohabiente del ISSSTE (ENSADER), 2007 [Internet]. México: ISSSTE [Consultado el 12 de octubre de 2018]. Disponible en: http://sgm.issste.gob.mx/medica/ensader/ensader_2007.pdf
13. Pagán JA, Puig A, Soldo BJ. Health insurance coverage and the use of preventive services by Mexican adults. Health Econ. 2007;16:1359-69.
14. Ortiz-Mendoza CM, Meza-Ramos E. Utilización de la mastografía en mujeres de 40 a 49 años en un hospital de segundo nivel. Rev Esp Med Quir. 2015;20:31-5.
15. NOM-041-SSA2-2011, Para la Prevención, Diagnóstico y Tratamiento, Control y Vigilancia Epidemiológica del Cáncer de Mama [Internet]. México: Secretaría de Salud [Consultado el 10 de marzo de 2018]. Disponible en: <http://www.salud.gob.mx/unidades/cdi/nom/041ssa202.html>
16. Asuncion N, Barcos A, Ederra M, Erdozain N, Murillo A, Osa A, et al. Breast cancer screening program. Results of the process and impact indicators (1990-2002). An Sist Sanit Navar. 2004;27:319-33.
17. Mai V, Sullivan T, Chiarelli AM. Breast cancer screening program in Canada: Successes and challenges. Salud Publica Mex. 2009;51(Supl 2): S228-35.
18. Swan J, Breen N, Coates RJ, Rimer BK, Lee NC. Progress in cancer screening practices in the United States: results from the 2000 National Health Interview Survey. Cancer. 2003;97:1528-40.
19. Reyes-Ortiz CA, Freeman JL, Peláez M, Markides KS, Goodwin JS. Mammography use among older women of seven Latin American and Caribbean cities. Prev Med. 2006;42:375-80.
20. López-Carrillo L, Torres-Sánchez L, Blanco-Muñoz J, Hernández-Ramírez RU, Knaut FM. Correct utilization of breast cancer detection techniques in Mexican women. Salud Publica Mex. 2014;56:538-64.
21. Nigenda G, Caballero M, González-Robledo LM. Barreras de acceso al diagnóstico temprano del cáncer de mama en el Distrito Federal y en Oaxaca. Salud Publica Mex. 2009;51(Supl 2):S254-62.
22. Sosa-Rubí SG, Walker D, Serván E. Práctica de mastografías y pruebas de Papanicolaou entre mujeres de áreas rurales de México. Salud Publica Mex. 2009;51:S236-45.