Knowledge and recommendations regarding breast cancer early screening in an upper middle income country: Primary and secondary health care professionals

C. Ortega–Olvera [a], G. Torres–Mejía [a,*], L.M. Sánchez–Zamorano [a], A. Ángeles–Llerenas [a], L. Martínez–Matsushita [b], R. Rojas–Martínez [a], E. Montemayor–Varela [a], Edgar Navarro-Lechuga [c], E. Lazcano–Ponce [a]

[a] Centro de Investigación en Salud Poblacional, Instituto Nacional de Salud, Pública, Avenida Universidad, No. 655, Colonia Santa María Ahuacatitlán, Cuernavaca 62100, Morelos, Mexico
[b] Departamento de Evaluación Clínica de Intervenciones para la Salud, Dirección de Evaluación de Tecnologías para la Salud, Centro Nacional de Excelencia Tecnológica en Salud, Paseo de la Reforma No. 450, Piso 13, Col. Juárez, Del. Cuauhtémoc, Distrito Federal 06600, Mexico
[c] Departamento de Salud Pública, Universidad del Norte, Km. 5 Vía Puerto Colombia, Barranquilla, Colombia

ARTICLE INFO

ABSTRACT

Objective. To compare the current breast cancer prevention and control Mexican standard with recommendations that health care professionals provide to women for breast self-exams, clinical breast exams and mammography, as well as health care professional knowledge of the risk factors for and main clinical signs of the disease.

Methods. In 2012, using a cross-sectional design, trained interviewers surveyed health care providers in a sample of 798 medical units, of which 756 corresponded to the first and second levels of medical care. One health care professional from each unit was interviewed for the study. The sampling method was systematic and representative of the national and regional levels. Relative frequencies and 95% confidence intervals (CI) were obtained using the weighting factor assigned to each medical unit.

Results. Regarding the indicator about recommendations provided to the population regarding early screening for and risk factors and clinical signs of breast cancer, the average number of health care professional responses in accordance with the Mexican standard was 10.7 (95% CI 10.0–11.4) out of a maximum of 28 points, which corresponds to an average rate of 38.2% of responses (95% CI 35.6–40.8). The percentage of correct answers increased in all areas of breast exam knowledge as training hours in the previous year increased.

Conclusions. Health care professionals are unaware of the current standards on breast cancer; therefore, these recommendations are not routinely translated into health care practice, which is a barrier to increasing the coverage of screening programs in health care services.

© 2016 Elsevier Inc. All rights reserved.

1. Introduction

In most Latin American countries, including Mexico, breast cancer is the leading cause of death from cancer among women (DeSantis et al., 2015; Torres-Sanchez et al., 2014). This increasing trend may be partly due to demographic effects (DeSantis et al., 2015; Ferlay et al., 2015),

changes in reproductive habits, economic development, geographical difficulties and differences in screening strategies and access to treatment (Cazap et al., 2010; Chatenoud et al., 2014). According to results from the 2012 National Health and Nutrition Examination Survey (Encuesta Nacional de Salud y Nutrición, ENSANUT), in the previous two years, mammography coverage rates were 29.4% for women aged 50 to 69 years and 17.2% for women aged 40 to 49 (Torres-Mejía et al., 2013); 90% of cases of breast cancer were detected by patients (López-Carrillo et al., 2001), and only 10% were diagnosed at an early stage (stage I) (Knaul et al., 2009). Mexico has an opportunistic screening breast cancer program (Reynoso-Noveron et al., 2013). The fact that most tumors are clinically detected at an advanced stage (Brandan and Villaseñor, 2006; López-Carrillo et al., 2001; Smith, 2014) is in part due to the lack of an organized screening program (Mohar et al., 2009; Torres-Mejia et al., 2015; Uscanga-Sanchez et al., 2014), suggesting that mammography is used more for diagnostic than for screening purposes (Brandan and Villaseñor, 2006; Smith, 2014). Furthermore,

there is limited access to mammography and a shortage of radiologists to interpret screening mammography (Torres-Mejia et al., 2015).

There are many examples worldwide of the lack of knowledge of or adherence to guidelines and standards for early screening by health care professionals (Akhigbe and Omuemu, 2009; Eisinger et al., 2008; Fotedar et al., 2013; Kamposioras et al., 2008; Soliman et al., 1997; Tucunduva et al., 2004; Villarreal-Garza et al., 2010; Yaren et al., 2008; Yousuf et al., 2012). A study that was conducted in 12 countries in Latin America and the Caribbean reported that although most of these countries have standards or guidelines similar to international standards for breast cancer early detection, there is great variation within each country in terms of compliance (Cazap et al., 2010). The lack of knowledge of national standards (Akhigbe and Omuemu, 2009; Fotedar et al., 2013; Villarreal-Garza et al., 2010; Yaren et al., 2008; Yousuf et al., 2012) and discussions related to the controversy over the age of onset and the frequency of mammographic screening (Anon., 1997, 2009; Fletcher et al., 1993; Olsen and Gotzsche, 2001) may contribute to these differences (Meissner et al., 2011).

In Mexico, interventions ensuring treatment of women with early stage breast cancer seem to be the most cost-effective (Niens et al., 2014). To achieve breast cancer early detection in Mexico, health care professionals must provide accurate information in accordance with the current standards. It is acknowledged that timely and appropriate care for patients with breast cancer is a worldwide priority, and since 2002, Mexico has had an Official Standard for breast cancer prevention, diagnosis, treatment, control and epidemiological surveillance, which was updated in 2011 (NOM-041-SSA2-2011) (Norma Oficial Mexicana). The updated standard was published in Mexico on June 9, 2011, in the Official Gazette of the Federation and is compulsory for all health care professionals. To disseminate the content of this standard to health care professionals after its publication, the National Center for Gender Equity and Reproductive Health (Centro Nacional de Equidad de Género y Salud Reproductiva) printed the document (30,000 copies) and referred to NOM-041-SSA2-2011 in refresher courses on breast pathology and during three events (Secretaría de Salud, 2012).

NOM-041-SSA2-2011 mentions that breast screening promotion must include a monthly breast self-exam (BSE) beginning at age 20, an annual clinical breast exam beginning at age 25, and mammography every two years in women aged 40–69 (Norma Oficial Mexicana). It also identifies the major risk factors and main clinical signs of the disease (Norma Oficial Mexicana). In this context, this study stems from the study "Monitoring of care to women in health care services 2012" ("Monitoreo de la atención a las mujeres en servicios del sector salud 2012") (Valdivia-Ibarra et al., 2013). Its aim was to describe and analyze the operation of various programs benefiting women, including breast cancer prevention and care, and the response rate was 93.2% (Valdivia-Ibarra et al., 2013). For this study, we compared NOM-041-SSA2-2011 with recommendations that primary (i.e., general practitioners, family physicians, nurses and social workers) and secondary (i.e., medical specialists) health care professionals provide to women in terms of BSEs, clinical breast exams and mammography, as well as their knowledge of the risk factors for and main clinical signs of the disease.

2. Methods

The project was approved by the National Institute of Public Health Ethics Committee: project number 1258, June 29, 2012. The study had a cross-sectional design. We used only complete information obtained by interviewers who surveyed health care providers in first (i.e., primary care) and second level (i.e., hospitals with the 4 main specialties: Surgery, Internal Medicine, Gynecology and Obstetrics, and Pediatrics, respectively) units of care. Of the 798 medical units, 756 corresponded to the first and second levels of care, and of those, 684 were professionals, corresponding to a weighted sample of 16,490 units (Valdivia-Ibarra et al., 2013).

The sampling design was systematic (Fuller, 2009) and probabilistic to obtain an unbiased estimator for the population variance. The sample was representative at the national and regional levels (Northeast, Northwest, Central, Mexico City and Mexico state, and South), per rural/urban stratum and health care institution: a) State Services of Health (Servicios Estatales de Salud, Sesa), b) Mexican Social Security Institute (Instituto Mexicano del Seguro Social, IMSS), c) IMSS Oportunidades Program (IMSS Prospera, formerly IMSS Oportunidades) and d) State's Employees' Social Security and Social Services Institute (Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado, ISSSTE). To select medical units, first, municipalities from each region were selected by means of systematic sampling with a probability proportional to the region's population size and then stratified by first, second and third levels of care and by health care institution. Sample size was allocated to strata within municipalities to allow institutions to have similar sample sizes (160); health care units were selected with systematic sampling with a probability proportional to the institution's population or to the number of physicians that worked in it, and the sample of a previous study was added (200 medical units) (Valdivia-Ibarra et al., 2013).

Trained personnel conducted questionnaires specifically designed for breast cancer. Data were entered directly into laptop computers. The questionnaires collected data on age (years), length of service (years), gender, profession (medical specialists [gynecologist, oncologist, family physician, pathologist, radiologist and plastic surgeon] and other health care personnel [general physician and nurses]), size of the unit's location (urban/rural), care level, and training hours that the staff received in the year prior to the survey for breast cancer prevention and screening, BSEs, clinical breast exams and gender equity. To assess the recommendations that health care workers provided to the population regarding early screening (clinical breast exams, BSEs and mammography) and their knowledge of the risk factors for and clinical signs of breast cancer that are referred to in NOM-041-SSA2-2011, a total of 28 questions were included regarding risk factors (10 items), BSEs (age and frequency: 2 items; aspects on which information is provided when performing BSEs: 6 items), clinical breast exams (age and frequency: 2 items; clinical signs: 6 items), and use of mammography (2 items) (Table 2). To grade the answers in accordance with the Official Standard, we divided the number of correct answers by the total number of questions (28), and multiplied the result by 100 for each participant to obtain the result as a percentage. Based on this average, a dichotomous variable was generated with those who obtained ratings <60 and those who obtained ratings ≥60. In addition, the percentage of correct answers for each of the following components was reported: risk factors, BSEs, clinical breast exams, clinical signs and mammography.

3. Data analysis

The analyses were performed considering the survey's sample design (Valdivia-Ibarra et al., 2013). Relative frequencies and 95% confidence intervals (CI) were obtained using the weighting factor assigned to each medical unit, corresponding to the inverse of its sample selection probability. The analysis was performed using StataCorp. 2013. Stata Statistical Software: Release 13. College Station, TX: StataCorp LP., employing commands for survey analysis (svy).

4. Results

The average age of the health care professionals was 36.6 years (95% CI 34.4–38.9), and 66.7% (95% CI 56.6–74.9) reported having less than 10 years of seniority. Just over two-thirds of the staff interviewed were women (76.7%; 95% CI 66.3–84.7). The sample was mainly composed of medical specialists (3.0%; 95% CI 2.0–4.3) and other health care personnel (97.1%; 95% CI 95.7–98). A total of 59.8% of the units were located in rural areas (95% CI 50.1–68.7); 94.9% were primary