Self-Reported Opportunistic Screening Mammography in Austria – 2005 vs. 1995

Christian Vutuc^a Thomas Waldhoer^a Paul Sevelde^{b,c} Michael Micksche^{b,d} Gerald Haidinger^a

^a Department of Epidemiology, Center of Public Health, Medical University of Vienna,

^b Austrian Cancer Society,

^c Department of Gynecology and Obstetrics, Lainz Hospital, Vienna,

^d Department of Internal Medicine I, Institute of Cancer Research, Medical University of Vienna, Austria

Key Words

Austria · Mammography · Breast cancer · Screening

Summary

Background: The prevalence of self-reported participation in opportunistic screening mammography in Austrian women aged 40–79 years in the year 2005 is reported and compared with the results of a similar investigation from 1995. **Methods:** In a representative population-based cross-sectional study, 552 women were asked about their usage of opportunistic screening mammography (number and time interval). **Results:** Overall the prevalence of self-reported opportunistic breast cancer screening was 81.9% (95% confidence interval, 95% CI: 78.4–85.5). The highest prevalence was observed in the age group 60–69 years with 87.6% (95% CI: 81.5–92.2), the lowest prevalence in the age group 70–79 years with 69.6% (95% CI: 57.3–80.0). Compared with 1995, the screening prevalence showed significant increases in the total group as well as in the single age groups. **Conclusion:** Opportunistic screening mammography is well accepted in Austria, with an increasing trend of regular utilization.

Schlüsselwörter

Österreich · Mammografie · Mammakarzinom · Screening

Zusammenfassung

Hintergrund: Wir berichten über die Prävalenz der Inanspruchnahme von opportunistischen Screening-Mammografien bei 40–79-jährigen Frauen in Österreich im Jahr 2005 und vergleichen die Angaben mit den Ergebnissen einer – nach identischen Methoden – im Jahr 1995 durchgeführten Querschnittserhebung. **Methoden:** Befragung einer für Österreich repräsentativen Stichprobe von 552 Frauen. **Ergebnisse:** Insgesamt haben 81,9% der Befragten (95%-Konfidenzintervall, 95% CI: 78,4–85,5) schon einmal eine opportunistische Screening-Mammografie in Anspruch genommen. Die höchste Prävalenz zeigte sich in der Gruppe der 60–69-jährigen Frauen (87,6%, 95% CI: 81,5–92,2), die niedrigste Prävalenz bei den 70–79-jährigen Frauen (69,6%, 95% CI: 57,3–80,0). Gegenüber 1995 ist die Prävalenz um 23,6% gestiegen. **Schlussfolgerung:** Die opportunistische Screening-Mammografie ist in Österreich gut etabliert, mit zunehmender Akzeptanz in den letzten 10 Jahren.

Introduction

Breast cancer is the leading cause of cancer death among women in Austria [1]. Like in many other countries mortality has decreased since the early 90s, commonly explained by the introduction of mammography screening for early detection of breast cancer in asymptomatic women and by improved therapeutic regimes [1–3]. In fact, opportunistic

screening in Austria already started in 1974, when an annual health checkup, recommended for all persons aged ≥ 40 years, available free of charge and funded by the General Health Insurance Plan (compulsory insurance system in Austria), was introduced [4]. To screen in age groups younger than 50 years usually is not recommended internationally, however, many women between 40 and 50 years of age could profit also [5].

In 1995, for the first time in Austria, the prevalence of self-reported participation in opportunistic screening mammography in women aged 40–79 years (the age range that has been targeted for opportunistic mass screening since 1980) was evaluated in a cross-sectional study [4]. In this paper we report the results of a repeat of this survey in 2005, using the same methods like in 1995.

Material and Methods

The data analyzed were extracted from the population-based cross-sectional study 'Attitudes towards Cancer' conducted in August 2005, which covered all parts of Austria (population: 8.17 million, 6.85 million $\geq$ 15 years of age, 1.92 million women aged 40–79 years). The aim of this study was to survey knowledge, attitudes, and behavior of the Austrian population with respect to various aspects of cancer. It was a repeat of a cross-sectional study conducted in 1995 using the same selection criteria, sample size, methods, and questionnaire [4, 6–8].

In cooperation with a public opinion survey institute, a quota sample of 2,400 Austrians aged $\geq$ 15 years was selected. The sample comprised 0.04% of the population $\geq$ 15 years of age and was representative in terms of age, sex, occupational status, and area of residence (source: population census 2001). The respondents were visited in their homes by 208 trained interviewers. The interview was face to face, using an anonymous standardized questionnaire. Of the 2,400 planned interviews a quota of 83.3% could be realized; 400 persons were not at home or refused interview. The remaining sample of exactly 2,000 persons (960 men and 1,040 women) meets the inclusion criteria regarding representativeness. For validation purposes, 30% of the interviews were reexamined by telephone, and no significant differences to the original face-to-face interview were found. The sample of respondents was weighted by age ('post-stratified') to the Austrian census population 2001.

The analysis of prevalence of self-reported participation in opportunistic screening mammography was restricted to women aged 40–79 years, thus 552 women formed the study group for this analysis. The questionnaire explicitly asked for the screening procedure in asymptomatic women and not for diagnostic examination. Women were asked if they ever had heard of early detection of breast cancer by mammography and if so, whether they had had a screening mammography ever during their life, and if so the number of mammographies and the time intervals between them. Women who never had heard of early detection of breast cancer by mammography ($n = 19$; 3.4%) were included in our calculations and counted as 'never screened'. Besides this screening-specific information, sociodemographic variables also were collected (age, marital status, residence, education, and income).

Data were analyzed according to 10-year age groups, and frequency of mammography was analyzed per time intervals in years between mammographies ($4+/\leq 2$, $2-3/\leq 2$, $>1/>2$, 1/ever, not specified, never had). Frequencies and confidence limits were calculated in SAS [9]. Statistics comprised the exact Fisher tests of differences in prevalence between the 1995 and the 2005 survey. No correction for multiple testing was applied.

Results

From 552 women aged 40–79 years, 96.6% ($n = 533$) knew about early detection of breast cancer in asymptomatic women by screening mammography (40–49 years: 97.6%, 50–59 years: 96.8%, 60–69 years: 96.9%, 70–79 years: 92.85%). Regarding the other sociodemographic variables, no relevant

differences in the proportions of women who did know and who did not know about screening were found (data not shown). From the 552 women who knew about early detection, 81.9% ($n = 451$) were screened at least once.

Table 1 gives the prevalence and 95% confidence intervals (95% CI) of self-reported opportunistic screening mammography by age and by number of mammographies per time interval between mammographies and of women who never participated. The comparison of opportunistic screening prevalence in 2005 to 1995 yields several significant increases. Overall, as well as per single age group, the percentage of women who ever had an opportunistic screening mammography increased significantly. The percentage of women who reported to have had 4 or more mammographies within the recommended time interval of two years increased significantly overall as well as per age group, except in the age group 70–79 years, where the prevalence also doubled, but statistically nonsignificant. In the category of 'not specified' (women who were not able to recall the number of mammographies and/or the time interval between mammographies) the percentage increased significantly overall, as well as in all age groups, except in the age group 40–49 years; here the prevalence also more than doubled, but statistically nonsignificant.

Discussion

Breast cancer screening has been offered to Austrian women since 1974 free of charge and opportunistically, i.e. free choice of radiologist, possibility of additional clinical tests, but no invitation system and no information about women who do not participate.

Austrian women are well informed about early detection of asymptomatic breast cancer by opportunistic screening mammography. The prevalence of knowledge is at about 97% in women aged 40–69 years and close to 93% in women between 70 and 79 years of age. This high level of knowledge results in a high utilization of this service. Compared to the 1995 survey [4], the number of women who reported to have had an opportunistic screening mammography at least once in their life increased significantly (table 1), driven mainly by the increase in the $4+/\leq 2$ category (= women who had at least 4 mammographies within the recommended time interval of 2 years). This category of women can be regarded to be well screened, albeit the women aged 40–49 years even may be regarded to be over-screened. The reason for this may lie in the fact that mass media frequently report of the necessity to start screening at age 40. This approach is recommended by the Austrian Cancer Society and by various national medical societies and is not completely in accordance with international guidelines [5].

The significant increase over time in the category 'not specified' can at least partly be explained by recall bias. We suppose that in this category many well-screened women are included, however, they were not able to give a precise answer

sources, money is better invested into the 'field', meaning improved information of women, enhancement of training, quality assurance of key professionals, and high-standard equipment. In the province of Tyrol this approach has already been carried out successfully and can serve as a model for the rest of Austria [19].

Acknowledgements

The Austrian Cancer Survey 2005 was funded by the Austrian Cancer Society.

References

- 1 Vutuc C, Waldhoer T, Haidinger G: Cancer mortality in Austria: 1970–2002. *Wien Klin Wochenschr* 2004;116:669–675.
- 2 Vutuc C, Waldhoer T, Klimont J, et al.: Survival of women with breast cancer in Austria by age, stage and period of diagnosis. *Wien Klin Wochenschr* 2002;114:438–442.
- 3 Wenzel C, Schmidinger M, Huber H: Gibt es Fortschritte in der medikamentösen Therapie von Patienten mit Mammakarzinom? *Wien Klin Wochenschr* 2001;113:306–320.
- 4 Vutuc C, Haidinger G, Waldhoer T: Prevalence of self-reported screening mammography and impact on breast cancer mortality in Austria. *Wien Klin Wochenschr* 1998;110:485–490.
- 5 Andersson I: Breast cancer screening with mammography. *Breast Care* 2007;2:4–5.
- 6 Vutuc C, Haidinger G, Waldhoer T, Ahmad F, Breitenecker G: Prevalence of self-reported cervical cancer screening and impact on cervical cancer mortality in Austria. *Wien Klin Wochenschr* 1999; 111:354–359.
- 7 Janda M, Obermair A, Haidinger G, Waldhoer T, Vutuc C: Attitude and knowledge of Austrian women towards breast self examination. *J Cancer Educ* 2000;15:91–94.
- 8 Vutuc C, Waldhoer T, Sevela P, Micksche M, Haidinger G: Self-reported prostate cancer screening in Austria. *J Med Screen* 2006;13:148–151.
- 9 SAS Institute Inc.: SAS/STAT User's Guide, Version 8. Cary, NC, SAS Institute Inc., 1999.
- 10 Montano DE, Phillips WR: Cancer screening by primary care physicians: a comparison of rates obtained from physician self-report, patient survey, and chart audit. *Am J Public Health* 1995;85: 795–800.
- 11 Paskett ED, Tatum CM, Mack DW, Hoen H, Case LD, Velez R: Validation of self-reported breast and cervical cancer screening tests among low-income minority women. *Cancer Epidemiol Biomarkers Prev* 1996;5:721–726.
- 12 King ES, Rimer BK, Trock B, Balshem A, Engstrom P: How valid are mammography self-reports? *Am J Public Health* 1990;80:1386–1388.
- 13 Olsson S, Andersson I, Karlberg I, et al.: Implementation of service screening with mammography in Sweden: from pilot study to nationwide programme. *J Med Screen* 2000;7:14–18.
- 14 Anttila A, Koskela J, Hakama M: Programme sensitivity and effectiveness of mammography service screening in Helsinki, Finland. *J Med Screen* 2002; 9:153–158.
- 15 Sinnatamby R, Britton PD: Breast screening in the UK – a national quality assured programme. *Breast Care* 2007;2:6–10.
- 16 Holland R, Rijken H, Hendriks J: The Dutch population-based mammography screening: 30-year experience. *Breast Care* 2007;2:12–18.
- 17 Day NE, Williams DRR, Khaw KT: Breast cancer screening programmes: the development of a monitoring and evaluation system. *Br J Cancer* 1989;59: 954–958.
- 18 Vutuc C, Waldhoer T, Haidinger G: Breast cancer trends: opportunistic screening in Austria versus controlled screening in Finland and Sweden. *Eur J Cancer Prev* 2006;15:343–346.
- 19 Frede TE: Opportunistic breast cancer early detection in Tyrol, Austria 1996–2004. Is a mammography-screening program necessary? *Eur J Radiol* 2005;55:130–138.