



Current Challenges and Perspectives in Breast Cancer in Elderly Women: The Senologic International Society (SIS) Survey

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ABSTRACT

Objective: Mammographic screening and management of breast cancer (BC) in elderly women are controversial and continue to be an important health problem. To investigate, through members of the Senologic International Society (SIS), the current global practices in BC in elderly women, highlighting topics of debate and suggesting perspectives.

Materials and Methods: The questionnaire was sent to the SIS network and included 55 questions on definitions of an elderly woman, BC epidemiology, screening, clinical and pathological characteristics, therapeutic management in elderly women, onco-geriatric assessment and perspectives.

Results: Twenty-eight respondents from 21 countries and six continents, representing a population of 2.86 billion, completed and submitted the survey. Most respondents considered women 70 years and older to be elderly. In most countries, BC was often diagnosed at an advanced stage compared to younger women, and age-related mortality was high. For this reason, participants recommended that personalized screening be continued in elderly women with a long life expectancy.

In addition, this survey highlighted that geriatric frailty assessment tools and comprehensive geriatric evaluations needed to be used more and should be developed to avoid undertreatment. Similarly, multidisciplinary meetings dedicated to elderly women with BC should be encouraged to avoid under- and over-treatment and to increase their participation in clinical trials.

Conclusion: Due to increased life expectancy, BC in elderly women will become a more important field in public health. Therefore, screening, personalized treatment, and comprehensive geriatric assessment should be the cornerstones of future practice to avoid the current excess of age-related mortality. This survey described, through members of the SIS, a global picture of current international practices in BC in elderly women.

Keywords: Breast cancer; elderly women; screening; treatment; international survey; senologic international society

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Key Points

- Breast cancer
- Elderly women
- Screening
- Treatment
- International survey
- Senologic international society

Introduction

Breast cancer in elderly women is a major public health issue. Age is one of the main risk factors for developing breast cancer and in the coming years, the life expectancy of women will increase worldwide. According to Globocan 2020 data, 20% of breast cancers and 50% of breast cancer deaths are seen in women over 70 years of age (1). Indeed, in 2020 estimated incidence and mortality in women aged ≥ 70 years were 194.1 and 87.8/100,000, respectively. According to estimates for 2040, breast cancer incidence and mortality are expected to almost double in women aged 70 years and over (+93.4% and +95.2%, respectively) (2). Compared to women aged up to 69 years-old (+26.0% and +28.4%), these increases in incidence and mortality are almost four-fold higher. There is therefore an urgent need to improve breast cancer prevention, screening and management in this elderly population.

Defining precisely what an elderly woman is may be difficult, as reflected by the divergence in the experts' responses and the current literature. According to the World Health Organization, a person is old from the age of 60 years, which is limited to the sole notion of chronological age. The elderly population is highly heterogeneous and the notions of frailty, poly pathology and poly medication must be taken into account, along with chronologic age.

The clinical and pathological characteristics of breast cancer in elderly women are different from those of breast cancer in younger women (3). Moreover, management of breast cancer differs in elderly patients due to a great heterogeneity in this population because of increased frailty, comorbidities, multiple medications, and so on. It is no longer only chronological age that is taken into account when evaluating these patients, but also biological age. In 2007, the International Society of Geriatric Oncology (SIOG) published the first guidelines on the management of breast cancer in elderly individuals (4). In 2012, these guidelines were then updated jointly with the European Society of

Breast Cancer Specialists (EUSOMA) (5). Current guidelines were published in 2021 by EUSOMA and SIOG (6). Yet, there are still many unresolved questions in the management of these patients.

The international Society of Senology (SIS) is dedicated to promoting breast health and improving the care of breast cancer patients, taking into consideration, medical, social, economic and ethical constraints.

The objective of this survey was to investigate, through members of the SIS, current international practices in breast cancer in elderly women worldwide, highlighting topics of debate and suggesting perspectives.

Materials and Methods

Members of the SIS network were asked to participate in an online survey with a Microsoft[®] Forms questionnaire (Microsoft Inc., Redmond, WA, USA). Between the 28th of June 2022 and the 25th of August 2022, participants were invited to answer the questionnaire via email. The answers were directly recorded into an online database and only one response per participant was allowed, but more than one response was allowed from the same country, because of regional disparities in any single country. Some questions were multiple choice, others were open-ended.

The online survey consisted of 55 questions. Section 1 (6 questions) was about the respondent themselves, such as affiliation and medical specialty. Section 2 (5 questions) was about breast cancer epidemiology in the participant's country (incidence, mortality, mean age concerned all BC, general life expectancy). Participants were asked about breast cancer screening in Section 2 (11 questions), including the existence of a national breast cancer screening program, and if one was present, details about the organization of breast cancer screening: beginning and ending age, frequency of screening, tests used for screening, number of mammogram readers, start date of screening, participation rate, and methods for financing this screening. Section

3 (11 questions) concerned elderly women with breast cancer and asked about definition of an elderly woman, breast cancer risk and aggressiveness and diagnosis (average stage at diagnosis, lymph node involvement, breast cancer screening efficacy, risk of overdiagnosis). Section 5 (13 questions) was about therapeutic management of elderly women with breast cancer and enquired about topics such as onco-geriatric evaluation, surgical concerns, medical treatment specifications in elderly women, use of radiotherapy, and therapeutic abstention. Finally, in Section 6 (9 questions) respondents were asked about future perspectives concerning screening, diagnosis and therapeutical management of elderly women with breast cancer. The full questionnaire is available as as Supplementary Material.

Statistical Analysis

Statistical analysis was conducted with R version 4.1.3 (2022-03-10) (7). For discrete variables, we performed a two-sided χ^2 tests (or Fisher's Exact tests) was performed. For continuous variables, Wilcoxon tests were used. Correlation tests were made using Pearson's method. The data (life expectancy in the participant's country and the age threshold) were distributed normally according to the Shapiro-Wilk tests (0.3523 and 0.291 respectively).

Results

Twenty-nine completed questionnaires were returned, from 28 participants (one double response). Participants came from 21 different countries on six continents: Algeria, Argentina, Australia, Brazil, Cameroon, China, Croatia, France, Germany, Greece, Israel, Japan, Kenya, Lithuania, Nepal, Nigeria, Poland, Saudi Arabia, Senegal, Turkey and the United States (Figure 1). These countries represent about 2.86 billion people, among whom 340 million people were over the age of 70 years. Participants were mostly surgeons specializing in breast cancer (78.5%, $n = 22$), while others were radiologists (7.1%, $n = 2$), oncologists (7.1%, $n = 2$), a nuclear medicine doctor (3.6%, $n = 1$) and one unspecified (3.6%, $n = 1$). Some of the survey results are reported in Tables 1 and 2. The median completion time for the questionnaire was 32 minutes per participant.

Definition of An Elderly Woman

Half of the participants identified women aged 70 years and over as elderly ($n = 14$, 50%). Other ages used as a cut-off for definition of an elderly woman were: 65 years for 17.9% ($n = 5$), 75 years for 10.7% (n

= 3), 69 years for 3.6% ($n = 1$), 60 years for 7.1% ($n = 2$), 55 years for 3.6% ($n = 1$), and 50 years for 3.6% ($n = 1$). No significant correlation was found between life expectancy in the participant's country and the age threshold ($p = 0.232$). Two participants took into account comorbidities for the definition of elderly.

Breast Cancer Screening and Diagnosis

Thirteen (62%) participating countries reported the existence of a breast cancer screening program, the other eight countries (38%) did not. Countries with a breast cancer screening program represented approximately 1.1 billion women worldwide. Among countries with breast cancer screening programmes, 11 had at least a high Inequality-adjusted Human Development Index (Ia-HDI), while the majority of countries without high HDI did not have breast cancer screening (75%). High Ia-HDI was significantly associated with the presence of breast cancer screening ($p = 0.0233$). Moreover, the presence of a breast cancer screening program was significantly associated with breast cancer mortality reduction in terms of age-standardized rates and lower mortality (13.7 versus 17.6 deaths/100,000, $p = 0.030$). In the countries where a screening program was applied, the ages in years at which screening ended were: 69 [35.3% ($n = 6$)]; 74 [23.5% ($n = 4$)]; 75 [17.6% ($n = 3$)]; and 80 [9.8% ($n = 2$)]. In Japan alone, there was no age limit on the screening program at which screening would be terminated. The upper age limit for screening was significantly correlated with life expectancy ($r = 0.688$, $p = 0.013$), as higher life expectancy was associated with a later ending age for screening.

Breast cancer screening involved mammographies in all countries (100%, $n = 17$), clinical examination in 64.7% ($n = 11$), breast ultrasound in 47.1% ($n = 8$) countries, and two participants also used tomosynthesis (11.8%), although the screening recommendations for their country's did not mention this technique. In the majority of countries, screening was recommended every two years (88.2%, $n = 15$), whereas in two countries (China and the United States), it was performed yearly in some parts of these countries. Mammographies were read by two radiologists in 76.5% of cases ($n = 13$), and by one radiologist ($n = 4$) otherwise. Reported participation rates ($n = 15$) were variable from one country to another, ranging from 15% (some China regions) to 80% (Some states of the USA), with an average of 53.4%. Screening was fully reimbursed in 70.6% of cases ($n = 12$), partially reimbursed in 23.5% of cases ($n = 4$), and at the patient's expense in 5.9% of cases ($n = 1$). The invitation methods also varied

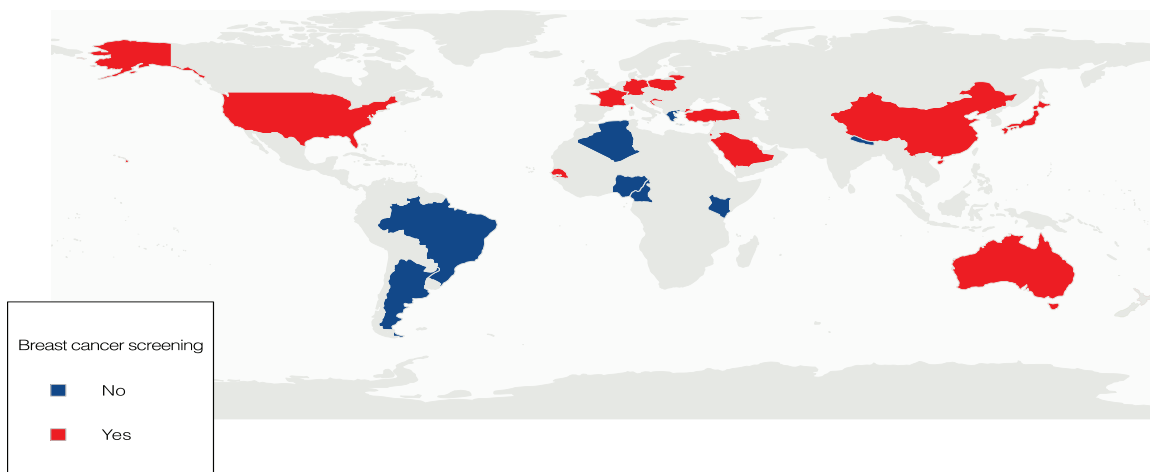


Figure 1. World map of participants' countries, according to a national breast cancer screening program presence

Table 1. Participants' responses: Breast cancer screening and diagnosis in elderly women

Question	Result	
	n/Mean	%
Is there a national breast cancer screening program in your country? (n = 28)		
Yes	17	61
No	11	39
Which tests are performed? (n = 17)		
Mammography	17	100
Clinical examination	10	59
Breast ultrasound	8	47
Tomography	2	12
How often? (n = 17)		
Every 2 years	15	88
Yearly	2	12
How many radiologists read the mammograms? (n = 17)		
Two	14	82
One	3	18
How is it financed? (n = 17)		
Total reimbursement	12	71
Partial reimbursement	4	24
Participant expense	1	6
Are older patients diagnosed at a more advanced stage of the disease compared to younger patients? (n = 28)		
Yes	15	54
No	8	29
Maybe	5	18
Are elderly women included in breast cancer screening in your country? (n = 28)		
No	14	50
Yes, individual screening	7	25
Yes, organized screening program	5	18
Other	2	7
Is breast cancer screening more effective in elderly women? (n = 28) (i.e., are there fewer false negatives)		
Yes	17	61
No	6	21
Maybe	5	18
Are there less unnecessary biopsies? (n = 28) (i.e., are there fewer false positives)		
Yes	19	68
No	7	25
Maybe	2	7
Are there less benign diseases in elderly women? (n = 28)		
Yes	19	68
No	7	25

Maybe	2	7
Are there less interval cancers in elderly women? (n = 28)		
Yes	11	39
No	9	32
Maybe	8	29

from one country to another: telephone, mail, via the attending physician or the employer, other or none.

Concerning breast cancer screening in elderly women, 48% of participants reported that older women were not included in screening programs, while 21% offered individual screening, and 17% of respondents reported that elderly women were included in organized screening programs. In the remaining cases, it depended on the program. Of interest, the majority of participants answered that the diagnosis of breast cancer in elderly women was done at a more advanced stage (51.7%), and screening was more effective in older women (i.e., fewer false negatives, 59%). Elderly women had less unnecessary breast biopsies (i.e., fewer false positives, 66%). Forty-one percent and 35% (n = 10) of the participants answered that there were fewer interval cancers, and less overdiagnosis, respectively. These results may be related to the good performances of mammography in detecting tumors (lower breast density in older women allowing easier reading).

Breast Cancer Management in Elderly Women

Only 14% of participants systematically used a geriatric assessment tool in their routine practice for their patients. Others reported its use sometimes for 59%, and never for 28%. Onco-geriatric consultation was systematically offered by 21% of respondents (48% sometimes, and 31% never). Specialists offered this specific consultation in women with multiple and severe comorbidities, sometimes even in all cases depending on the age (starting at 65 years of age with comorbidities for some, or 80 years of age and older for others). Some specialists also requested geriatrician consultation for treatment decisions and the risk of treatment complications.

Regarding the use of mastectomy for older women, participants' responses were heterogeneous: 33% performed more, 33% the same rate and 33% less of this intervention compared to younger women. For 90% of participants, being elderly was not a contra-indication for oncoplastic surgery. Breast reconstruction was not contra-indicated in elderly women for 59% of participants, 7% answered that all techniques were contra-indicated, and 34% were undecided. Sentinel lymph node biopsy indications and axillary lymph node dissection indications were not different in elderly women for the vast majority of participants (respectively 79% and 76%).

Concerning adjuvant treatments, 79% of participants applied adjusted protocols for chemotherapy, 77% performed less neoadjuvants protocols and 76% had adjusted protocols for radiotherapy. Exclusive hormone therapy was generally preferred for hormone receptor-positive breast cancer patients with severe comorbidities, or contra-indicated for chemotherapy or/and radiotherapy. Some participants chose therapeutic abstention for patients with multiple and severe comorbidities, frail patients with short life expectancy, or in case of multiple metastases, or triple negative tumors in elderly patients with poor performance status. One participant also answered that this was the case in small DCIS or low grade tumors in patients with short life expectancy.

Table 2. Participants' responses: Treatment and future perspectives

Question	Result	
	n/Mean	%
Do you use a geriatric assessment tool in your routine practice? (n = 28)		
Sometimes	16	57
Never	8	29
Always	4	14
Do you offer a specialised oncogeriatric consultation to elderly women with breast cancer? (n = 28)		
Sometimes	13	46
Never	9	32
Always	6	21
Do you perform more or less mastectomies in elderly women? (n = 28)		
Less	10	36
Equally	10	36
More	9	32
Are elderly women contra-indicated for oncoplastic surgery? (n = 28)		
No	25	89
Yes	3	11
Is breast reconstruction contra-indicated in elderly women? (n = 28)		
No	17	61
Yes, some techniques	9	32
Yes, all techniques	2	7
Are sentinel lymph node biopsy indications different in elderly women? (n = 28)		
No	22	79
Yes	6	21
Are axillary lymph node dissection indications different in elderly women? (n = 28)		
No	21	75
Yes	7	25
How is adjuvant chemotherapy performed in elderly women? (n = 28)		
Adjusted protocols	23	82
Same protocols as younger patients	4	14
Other situations	1	4
Is neoadjuvant chemotherapy more or less performed in elderly women? (n = 28)		
Less	22	79
Equally	4	14
More	2	7

Elderly women and breast cancer management

How is adjuvant radiotherapy performed in elderly women? (n = 28)

Adjusted protocols	22	79
Same protocols as younger patients	4	14
Other situations	2	7

Do you offer clinical trials for elderly women with breast cancer in your center? (n = 28)

No	17	61
Yes	11	39

Do you think breast cancer screening should be continued in elderly women? (n = 28)

Yes	17	61
Maybe	10	36
No	1	4

Would you consider a specific multidisciplinary meeting to older women with breast cancer in order to optimize their management? (n = 28)

Yes	20	71
Maybe	5	18
No	3	11

In your opinion, do you think that specific guidelines should be established/followed for elderly women with breast cancer? (n = 28)

Yes	20	71
Maybe	7	25
No	1	4

Perspectives

Perspectives

The majority (62%) of participants did not have clinical trials for elderly women with breast cancer, but considered that offering more clinical trials in elderly women would allow better adaptation of treatments. Concerning breast cancer screening continuation in elderly women, only one participant (3%) disagreed, because of the low percentage of elderly women in the population demography in his country. Participants in favor of continuing screening argued that age is one of the main risk factors for developing breast cancer, and that elderly women are considered to be at high risk and have a higher mortality rate. The goal of continued screening would be to detect lesions at an earlier stage, allowing a decrease in treatment morbidities and mortality to preserve quality of life (more than overall survival). Participants also noted that mammography is easily performed and simple to interpret in older women because of low breast density. The undecided participants mentioned the notion of life expectancy: for patients with a life expectancy of at least five years, some were in favor of continuing screening, and noted that more studies are needed to evaluate the efficiency and benefits of screening program in this age group.

Participant-suggested age for ending the screening program ranged from 70 to 85 years, or as long as the patient was healthy and had at least five years of life expectancy. They also suggested continuing clinical examinations and mammography screening yearly or every two years. Regarding ways to improve diagnostic management of breast cancer in elderly women, several mechanisms were suggested: integration in a population based screening program; improvement of

Table 3. Topics for which there was strong agreement and related perspectives

Topic	Strong agreement	Perspectives
Surgery	Axillary surgery indications were similar to younger women, and oncoplastic techniques were mostly not contra-indicated	Breast reconstruction and oncoplastic techniques should be more offered to elderly women, according to individual health condition and preferences
Adjuvant treatments	Adjusted chemotherapy and radiotherapy protocols should be used	Specific guidelines should be established/followed for adjusted protocols in elderly women with breast cancer
Oncogeriatric assessment	Geriatric assessment and specialized geriatric consultations are not enough used	Geriatric assessment tools and specialized geriatric consultations should be developed (including life expectancy models)
Screening	Screening's performances are better in this elderly population	Screening continuation should be encouraged in elderly women
Multidisciplinary meetings	Multidisciplinary meetings dedicated to elderly women with breast cancer are uncommon	Multidisciplinary meetings dedicated to elderly women with breast cancer should be encouraged
Clinical trials	Elderly women are often excluded from clinical trials	Elderly women should be included in clinical trials

public health awareness and self-examination methods; optimization of outpatient indications for biopsies; early referral to specialist units; and to discriminate diagnostic evaluation decisions and indications on the basis of chronological age.

To improve the therapeutic management of breast cancer in elderly women, participants emphasized the importance of early diagnosis and individualised approaches to avoid over- or under-treatment. They also encouraged a multidisciplinary approach involving several specialists, such as geriatricians, oncologists, and maybe cardiologists and psychiatrists, if necessary. Indeed, 72% of participants considered a specific multidisciplinary meeting to discuss older women with breast cancer in order to optimize their management. Of the participants surveyed, 72% were favorable for the adoption of specific guidelines for elderly women with breast cancer.

Discussion and Conclusion

This survey produced a global picture of current international practices in breast cancer in elderly women, through members of the SIS. Of interest, these results show that while there was strong agreement in some areas, others remained heterogeneous and not consensual. This may be explained by the fact that demographic, socio-cultural, economical factors (re-imburement for mammography can reduce screening rate) and, breast cancer awareness, knowledge, incidence and mortality are different between countries. The lack of sufficient infrastructure and the cost of nationwide mammographic screening also play a role in these differences. However, a population-based mammography screening program in a middle-income country has shown that screening is cost-effective and provided early diagnosis (8). Below, we discuss the issue of breast cancer screening among elderly women and specific questions regarding treatment, highlighted by this survey and the EUSOMA/SIOG 2021 guidelines (6). Moreover, some perspectives and possible future changes emerged from this survey.

Breast Cancer Screening in Elderly Women

The question of extending screening in elderly women is controversial: the majority of respondents favored continued screening, and only one did not agree. A review by Walter et al. (9) published in 2014 found that there is no randomized trials of screening mammography that included women over the age of 74 years, and observational data

showed that in elderly women with a life expectancy $\geq 5-10$ years it is not known whether screening decreases breast cancer mortality. The authors suggested that this choice should be made according to the individual woman's preference and health condition. Besides mortality, screening could also allow a less aggressive treatment, such as breast-conserving surgery, sentinel lymph node biopsy, less chemotherapy, and thus reduce the negative impact of treatment on quality of life.

Of interest, Vacek and Skelly (10) published a prospective study in 2015 of the use and effects of screening mammography in women aged 70 years and older. They included 20,697 women with a follow-up of 10.2 years and found that screening declined by 9% for each year of age, and advancing age was associated with more clinically-detected cancers. Interestingly, clinically-detected breast cancer was significantly associated with higher breast cancer mortality [hazard ratio (HR) = 1.68 (95% confidence interval (CI) = 1.43-1.96) for clinically-detected *versus* HR = 1.22, (95% CI = 1.07-1.40) for screening-detected], thus demonstrating a benefit of continuing screening. The authors also concluded that early treatment improved survival.

In a meta-analysis including seven studies published in 2016 by Braithwaite et al. (11) the authors showed that, apart from older women with severe comorbidity, screening may improve life expectancy in women 65 years and older (limited evidence). In 2020, Demb et al. (12) published an observational study of 222,088 women and investigated breast cancer incidence and mortality in women aged between 66 and 94 years who underwent screening and found that mortality by other causes was many times higher than breast cancer mortality. Moreover, mortality by other causes increased with advancing age and comorbidities, therefore suggesting that benefit from continued screening would decrease in these situations. Similarly, García-Albéniz et al. (13) conducted an observational study from the same database (Medicare) including 1,058,013 women aged 70 to 84 years who had a life expectancy of at least 10 years and compared two screening strategies: continuing annual mammography, and stopping screening. This result showed that continuing screening reduced the 8-year risk for breast cancer death by 1.0% [HR, 0.78 (CI, 0.63 to 0.95)] in women aged from 70 to 74 years. Conversely, in those aged 75 to 84 years, the corresponding HR was 1.00 (CI, 0.83 to 1.19), thus supporting the discontinuation of screening in women over 74.

The 2021 updated recommendations from the EUSOMA/SIOG (6) stated that “screening in women ≥ 75 years could be appropriate with the individual decision based on risks and benefits, patient preference, physiological age, and life expectancy, but might lead to increased rates of overdiagnoses (level 4)”. American College of Radiology (ACR) and Society of Breast Imaging (SBI) also updated breast cancer screening recommendations for all women at average risk in 2021 and stated that screening should continue after the age of 74 years without an upper age limit, unless severe comorbidities limit life expectancy (14).

Consequently, in elderly women (≥ 75 years and over), optimal screening should be individual, and not organized. The decision to continue or stop screening should be made on a individual basis, but it is important to note that the fact that organized screening stops at a cut-off age can lead to the false idea that cancer risk stops, which is not the case. Decisions about screening should take into account age, life expectancy, comorbidities and women’s preferences (including risk perception). Mammography is more effective (10) compared to in younger women (as suggested by the experts surveyed in this study) because breast density decreases with age (15) and there are less benign breast diseases in the elderly population, leading us to suggest that, if continued, screening should be clinical and mammographical. Finally, the optimal interval between screenings may be at least two years, as this time interval is the most common one, and because there are fewer intervals of cancers with advancing age (16).

Onco-Geriatric Assessment in Elderly Women With Breast Cancer

The concept of frailty does not have a consensual definition because there is no patho-physiological approach to explain the complexity. Some approaches to identifying frailty exist (17) but are insufficient. In clinical practice, there are screening tools for geriatric frailty, such as the G8, which identify frail elderly cancer patients and then offer them a multidimensional geriatric assessment. This score takes into account nutrition, recent weight loss, body mass index, motor skills, age, self-perceived quality of life, neuropsychological problems and polymedication. Establishing a G8 score is easy and was validated by the ONCODAGE study (18) in a cohort including 1,674 cancer patients with a mean age of 78.2 years. Attempts to improve the G8 have been proposed, including by the team of Petit-Moneger et al. (19) in 2016, who show that the addition of the four Instrumental Activities of Daily Living items improves G8 performance and is achievable in less than 10 minutes. The use of the modified G8 demonstrated better diagnostic performance in detecting patterns suggestive of frailty, according to Martinez-Tapia et al. (20) in 2022. More specifically, using the G8 in breast cancer did not affect the survival of patients in whom a mastectomy was proposed in a study of 177 patients over 70 years of age (21): it is a screening tool and not predictive of mortality.

Screening tools are to be distinguished from the comprehensive geriatric assessment (CGA), which requires consultation with a geriatric specialist. The main domains explored by the CGA are social environment, functional, nutritional, cognitive, and psychological status (depression, anxiety), mobility, falls, fatigue, sensory disturbances, comorbidity, medications, and presence of geriatric syndromes (22). Unlike geriatric frailty screening tools, the CGA has a prognostic value, and may lead to changes in oncologic treatment (23, 24, 25), and also decrease treatment morbidity (26). Some authors suggested that patients would benefit from the addition of quality of life assessment to the CGA (27, 28).

The 2021 EUSOMA/SIOG (6) guidelines state that a screening tool should be considered in the decision making process. Likewise, we recommend that this geriatric frailty screening – with or without

CGA – should be performed in frail elderly patients, because it allows a personalized approach with identification of geriatric elements that may complicate cancer management. It also allows the optimization of medical treatment of comorbidities.

Breast Cancer Treatment in Elderly Women

Therapeutic management of breast cancer becomes more delicate in the elderly population. Compared to younger patients, not only do elderly patients have more comorbidities, but also a higher risk of dying from other causes. Indeed, tailoring of breast cancer treatment should also take into account life expectancy, as it has been highlighted in this survey and in the 2021 EUSOMA/SIOG guidelines and in 2021 ACR and SBI guidelines. However, estimating life expectancy is challenging. In this context, de Glas et al. (29) published in 2016 a predictive algorithm (PREDICT) that could accurately predict the 5-year overall survival in older patients with breast cancer, although it did not include any geriatric assessment. More recently, van der Plas-Krijgsman et al. (30) published another predictive tool named PORTRET, which is able to predict recurrence, overall survival, and other-cause mortality in older patients (≥ 65 years) with breast cancer. These predictive tools are useful in the decision making process in order to adapt treatment to life expectancy and could be implemented in clinical routine practice.

In this survey, participants stated that axillary surgery was globally similar in elderly women. Of interest, the 2021 EUSOMA/SIOG guidelines specified that sentinel lymph node biopsy “remained the standard of care for staging the axilla in patients with clinically and radiologically negative axilla” (6), however these guidelines indicated that axillary surgery could be omitted in “patients with *cT1N0* luminal A-like tumours or short life expectancy” (6). Still, axillary lymph node dissection (ALND) indications may be different according to the survey’s participants and the guidelines in patients with a positive sentinel lymph node, and axillary radiotherapy should be preferred (6). Conversely, primary endocrine therapy could also be considered instead of surgery, especially when life expectancy is < 5 years (6). Breast surgery remains not contraindicated in most cases, lumpectomy and sentinel lymph node biopsy can be easily performed with local anesthesia and sedation. Moreover, oncoplastic surgery was not contraindicated in both the survey’s responses and in the 2021 guidelines. Finally, breast reconstruction may be offered to elderly women, according to patients’ comorbidities and desire, but it has higher complication rates compared to younger women (31), and some techniques, such as free flaps, are usually contraindicated.

Regarding adjuvant treatments, participants answered that they followed adjusted chemotherapy and radiotherapy protocols in elderly women. Indeed, hypofractionated radiotherapy may be an alternative in cases of restricted mobility or geographic distance. Several studies have demonstrated that hypofractionated protocols may be an acceptable alternative to normofractionated protocols in elderly breast cancer patients (32-34). Accordingly, the 2021 EUSOMA/SIOG guidelines stated that hypofractionated protocols should be preferred (6). Adjuvant chemotherapy in estrogen receptor-positive human epidermal growth factor receptor-2 (HER2)-negative breast cancer has lesser benefit compared to younger women. Indeed, a recent study of 1,969 women aged 70 years and over with a high-risk molecular signature score found that chemotherapy + endocrine therapy versus endocrine therapy alone did not result in a significant benefit in overall survival, suggesting therefore that adjuvant chemotherapy could be omitted even for high-risk patients (35). Nonetheless, for triple

negative phenotypes and HER2-positive cancers, chemotherapy and targeted therapies should be considered as there is a benefit in elderly women (36).

Of interest, the vast majority of this survey participants stated that a dedicated multidisciplinary meeting for discussion of older women with breast cancer should be considered. This point was not included in the EUSOMA/SIOG 2021 guidelines and there is no literature published on this topic, to our knowledge. One could suggest that this practice should be encouraged in specialized centers with enough activity and a dedicated team, and could improve not only breast cancer treatment, but also the global management of elderly women.

This survey provided a general picture of current international practices of breast cancer in elderly women. It underlined that breast cancer management in elderly women remains complex and sometimes heterogeneous and not consensual. Different topics were investigated, and are summarized in Table 3. Regarding the continuation of screening in elderly women, the experts surveyed in this study and the international recommendations are in favor of continuing screening on an individual basis. In addition, it is important to emphasize that existing guidelines and predictive models of life expectancy can be an assistance in the treatment decision. Furthermore, the establishment of specific multidisciplinary committees can also be an approach for difficult cases. Breast cancer in elderly women is a central issue in the future of senology, and therefore an urgent matter that needs addressing.

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