

Gynaecologists' awareness of bone healthcare in Switzerland

Petra Stute^a, Martin Birkhäuser^a, Michael von Wolff^a, Christian Meier^b

^a Gynaecological Endocrinology and Reproductive Medicine, Department of Obstetrics and Gynaecology, Inselspital, University Hospital and University of Bern, Switzerland

^b Department of Endocrinology, Diabetology and Metabolism, University Hospital Basel, Switzerland

Summary

PRINCIPLES: To assess gynaecologists' awareness of bone healthcare in women and the prevalence of application of national recommendations on bone healthcare in Switzerland.

METHODS: During the annual meeting of the Swiss Society of Gynaecology and Obstetrics 2012, the Swiss Association against Osteoporosis (SVGO) performed standardised interviews with conference participants (n = 210). Questions addressed responsibility for bone healthcare, and whether diagnostic procedures, initiation of bone-specific treatment and follow-up were performed in accordance with SVGO recommendations.

RESULTS: The majority of respondents were aged 30–50 years (60%), female (70%) and working as board-certified gynaecologists (69%). Ninety-three percent of respondents considered care for bone health as part of the gynaecologist's expertise. As diagnostic procedures, 44% recommended performing bone densitometry (DXA) only, 34% ordered additional laboratory testing. Seventy-two percent of respondents initiated a bone-specific treatment. Predictors for not performing diagnostic procedures and not initiating a bone-specific treatment were physician's age below 30, being a trainee gynaecologist, and working at a university clinic. Particularly, young trainee gynaecologists working at a university clinic were especially unlikely to initiate a bone-specific treatment (regression coefficient = -2.68; odds ratio [OR] 0.069, 95% confidence interval [CI] 0.01–0.61; p = 0.16). Follow-ups were performed by 77% of respondents, but were less likely to be by female physicians (OR 0.27, 95% CI 0.09–0.84; p = 0.024).

CONCLUSIONS: Although the majority of board-certified gynaecologists follow national recommendations on bone healthcare, current medical training in obstetrics and gynaecology does not sufficiently cover the subject of women's health. However, since this is a small study our findings may not reflect the findings in the total population.

Key words: bone healthcare; osteoporosis; guidelines; gynaecology; Swiss Association against Osteoporosis (SVGO); Switzerland

Introduction

Osteoporosis is a multidisciplinary disease. Depending on age, comorbidities and fractures, osteoporosis treatment falls within various fields of medical expertise, such as general internal medicine, endocrinology, rheumatology, orthopaedics and gynaecology. In Switzerland, bone healthcare, including osteoporosis, is part of the educational programme to become a board-certified general internal medicine specialist, gynaecologist, rheumatologist or endocrinologist (www.fmh.ch). Owing to menopausal oestrogen deficiency, women are more often affected by osteoporosis than men, with one in two women above the age of 50 suffering from an osteoporotic fracture [1]. In Switzerland, osteoporosis is in position seven of the most frequent chronic diseases in women. However, only 17.5% of women and 19.1% of women above the age of 65 are or have been receiving medical treatment for this condition (Swiss Federal Statistical Office, <http://www.bfs.admin.ch>, online search 02.03.2013). Thus, chances are high for women being neither diagnosed nor treated for osteoporosis, which is reflected by increasing numbers of hospitalisations for osteoporotic fractures in women [1]. Furthermore, women's awareness of osteoporosis is generally low [2], making bone healthcare an even more urgent subject to be addressed by healthcare providers. Menopausal hormone therapy (MHT) is one therapeutic option, especially for primary and secondary osteoporosis prevention [3]. However, as in multiple Western countries, in Switzerland, the most recent Swiss Health Survey (2007) by the Federal Statistical Office reported a reduced prevalence of MHT use by almost 50% in women aged 45 to 64 since 2002 after the publication of the Women's Health Initiative results [4]. Thus, even more women will develop osteoporotic fractures if the decline in bone mineral density is not diagnosed in time. This future perspective is even more compelling because the growing medical armamentarium against osteoporotic fractures makes it easy to find a suitable medication for each individual [5]. In 2010, revised recommendations for diagnostic procedures, bone-specific treatment and monitoring of osteoporosis were introduced by the Swiss Association against Osteoporosis (SVGO)

(<http://www.svggo.ch>) in which the Swiss Menopause Society is represented. Recommendations are based on bone densitometry (t-score) of the hip or spine, previous hip or spine fractures and the World Health Organisation (WHO) fracture risk assessment tool FRAX(R), which predicts a patient's 10-year probability of osteoporosis-related fracture on the basis of age, gender and various risk factors [6, 7]. The aim of this study was to assess the gynaecologists' awareness of bone healthcare in Switzerland, and the prevalence of the application of national recommendations in daily practice.

Methods and materials

During the annual meeting of the Swiss Society of Gynaecology and Obstetrics (SGGG) 2012 in Interlaken, the Swiss Association against Osteoporosis (SVGO) performed standardised interviews with conference participants (n = 214; 25% of registered participants). Individual interviews were performed by five medical students from the University of Bern who in turn received free access to the conference. The students were asked to perform about 50 interviews each. The study was approved by persons responsible for the SGGG. Questions addressed responsibility for bone healthcare, diagnostic procedures according to SVGO recommendations, initiation of a bone-specific treatment and monitoring strategy. In detail, subjects were asked about their sex (female, male), age (age <30, age 30–50, age >50), medical education (board-certified gynaecologist, trainee gynaecologist, other), workplace (university clinic, cantonal clinic, other clinic, private practice, other), and if they address the subject of osteoporosis during their consultation (yes, no). In a next step, subjects were asked if they consider bone healthcare and osteoporosis to be within the gynaecologist's expertise (yes, no). If not, they were asked who in their opinion was the responsible physician (general practitioner, orthopaedist, rheumatologist, internal medicine specialist, other). If the answer was "yes", they were asked if they perform diagnostic procedures in accordance with the SVGO recommendations (bone densitometry [DXA] only, DXA and laboratory analysis, none). Those who perform diagnostic procedures were then asked if they initiate a bone-specific treatment (yes, no), and if they perform follow-up (yes, no). Finally, those who treat women for osteoporosis were asked about their patients' age (age <50, age 50–59, age 60–70, age >70).

Statistical analysis was performed using SPSS 17 (SPSS Inc. 2010). For between group comparisons the exact Fisher Test, and, where applicable, the chi-square test were used. Confidence intervals as a measure of precision for relative values (%) were calculated in accordance with Newcombe ("exact binomial tail areas"). Data have been interpreted descriptively. Thus, p-values ≤ 0.05 indicate an exploratory significant difference. Logistic regression analysis was performed for multivariate prediction of a binary variable presenting the respective odds ratio of the predictor and the descriptive 95% confidence interval.

Results

Subjects' characteristics

A total of 214 conference participants (25% of registered participants) volunteered for the interview. For 210 subjects the dataset was complete, for three participants information on their age and sex, and for one participant information on medical training and workplace was missing. Sex was not equally distributed across age groups (female n = 148, male n = 62), reflecting the sex distribution among gynaecologists. Below the age of 30 (mostly trainees), 95% of respondents were female. In the age group 30–50 years, female respondents still dominated with 76%, while above age 50, sex distribution was almost equal (female 52%, male 48%). The trend for subjects being more likely to be female with decreasing age was significant ($p < 0.01$). The majority of board-certified gynaecologists worked in private practice (49%); 19% were employees at a cantonal clinic, 17% at a university clinic, and 14% in other clinics. All but two trainee gynaecologists were employees at a hospital (university clinic [44%], cantonal clinic [37%], other clinics [13%]). Eighty-five percent of respondents below the age of 30 were trainee gynaecologists. There was no significant correlation between medical education and workplace ($p = 0.47$).

Attitude towards bone health and osteoporosis in women's healthcare

Independently of sex ($p = 0.48$), age ($p = 0.29$) and medical education ($p = 0.62$), the majority of respondents (93%) considered bone health and osteoporosis to be being part of their medical expertise as a gynaecologist. However, fewer respondents (86%) actually addressed the subject during their consultation, again independently of sex ($p = 0.25$) and age ($p = 0.07$). Interestingly, significantly more respondents working in private practice addressed the subject during their consultation compared with employees at a clinic ($p = 0.01$), although the latter more often considered bone healthcare to be part of their medical expertise ($p = 0.01$). When taking medical education into account, significantly more board-certified gynaecologists counselled patients about osteoporosis than did trainee gynaecologists ($p = 0.01$). Of those who considered bone health and osteoporosis not to be part of the gynaecologists' field of expertise, 4% felt the general practitioner, 3% the rheumatologist, and 1% the internal medicine specialist to be the responsible physician. None of the respondents believed that osteoporosis was primarily the field of orthopaedic expertise.

Diagnostic procedures, bone-specific treatment and follow-up

Respondents who agreed to bone healthcare and osteoporosis being part of the gynaecologist's expertise (n = 197) were asked if they perform diagnostic procedures in accordance with SVGO recommendations, initiate a bone-specific treatment and perform follow-ups, or if they leave that to others (table 1). In general, there was a trend to performing diagnostic procedures in accordance with SVGO recommendations less often in male ($p = 0.09$) and younger respondents ($p = 0.06$). In clinics, any kind of diagnostic procedures were significantly less often performed than in

private practice ($p < 0.01$). Similarly, when taking medical education into account, significantly more trainee gynaecologists did not perform diagnostic procedures compared with board-certified gynaecologists ($p = 0.01$). However, if diagnostic procedures were performed, medical education did not have a significant impact on the procedures chosen (DXA only: $p = 0.38$; DXA plus laboratory analysis: $p = 0.08$). There was no sex-dependent difference in the frequency of treatment initiation ($p = 0.48$). Similarly, workplace did not have an impact ($p = 0.56$). However, board-certified gynaecologists were significantly more likely to initiate a bone-specific treatment than trainee gynaecologists ($p < 0.01$). In respect to performing follow-ups, respondent's age ($p = 0.34$), workplace ($p = 0.56$), and medical education ($p = 0.84$) did not have an impact. However, male respondents performed follow-ups significantly more frequently ($p = 0.02$). Most patients who received a bone-specific treatment by gynaecologists were within the age group 50–59 (36%) and 60–69 (38%), whereas only in few patients below the age of 50 (9%), or above the age of 70 (17%) was a bone-specific treatment initiated by gynaecologists.

Prediction for adequate bone healthcare

The probability of adequate bone healthcare depends on various factors, some of which are associated with the characteristics of the healthcare provider. Therefore, the predictive value of relevant factors presented above (section "Subjects' characteristics") will be provided.

Significant predictive factors for the subject of osteoporosis being addressed during a consultation were the medical training and workplace, but not the age of the respondent. In detail, being a board-certified gynaecologist increased the likelihood for the subject osteoporosis being addressed during a consultation, whereas being a trainee gynaecologist and working at a university clinic decreased the chances (table 2).

The likelihood of performing a diagnostic procedure that comprises bone densitometry (DXA) and laboratory analysis in accordance with SVGO recommendations was highest in board-certified gynaecologists. However, predictive factors for not performing any diagnostic procedure were respondent's aged below 30, being a trainee gynaecologist, working at a university clinic or other places (table 2). Logistic regression analysis for the combination of either two or all relevant variables (respondent's age, medical training and workplace) did not reveal any significant impact on performing a diagnostic procedure. Pre-

dictive factors for initiating a bone-specific treatment were respondent's aged above 50, being a board-certified gynaecologist and working at other clinics. However, predictive factors for not initiating a bone-specific treatment were respondent's aged below 30, being trainee gynaecologist and working at a university clinic (table 2).

The question if there was a combined effect of age below 30, being a trainee gynaecologist and working at a university clinic was further analysed with logistic regression analysis. Nine out of 214 respondents fulfilled all criteria. The combined criterion age below 30 and working at a university clinic as well as the combined criterion being a trainee gynaecologist and working at a university clinic were associated with low chances of initiating a bone-specific treatment. In particular, young trainee gynaecologists working at a university clinic were especially unlikely to initiate a bone-specific treatment (table 3).

The likelihood of performing follow-ups was not affected by the respondent's age, medical education or workplace. However, chances of performing a follow-up were significantly reduced if respondents were female (table 2). Logistic regression analysis for the combination of either two or all relevant variables (respondent's age, medical training and workplace) did not reveal any significant impact on performing follow-ups.

Discussion

To our knowledge, this is the first study investigating the gynaecologists' awareness of bone healthcare and their application of national recommendations on screening, treatment and monitoring of women at risk for osteoporosis. We were able to show that (1.) the absolute majority of gynaecologists consider bone healthcare to be part of their medical expertise, (2.) board-certified gynaecologists cover all aspects of bone healthcare and apply national recommendations, but (3.) physicians below the age of 30 and those working at a university clinic all need more medical education on bone healthcare.

In Switzerland in 2012, there were 1,493 registered board-certified gynaecologists who predominantly worked in private practices (69%). Sex distribution was almost equal (female 53%, male 47%). In addition, there were 560 trainee gynaecologists who predominantly worked in clinics (99%) (<http://aerztestatistik.myfmh2.fmh.ch/>; http://www.fmh.ch/bildung-siwf/weiterbildung_allgemein/aerztedemographie.html). Thus, of board-certified and trainee gynaecologists ($n = 2,053$), approximately 42% at-

Table 1: Prevalence of diagnostic procedures, initiation of bone-specific treatment and follow-up performed by gynaecologists ($n = 214$).

Necessary tasks in bone healthcare	n (%)
Diagnostic procedures (SVGO-recommendation)	195
Bone densitometry only	86 (44)
Bone densitometry and laboratory analysis	66 (34)
None	43 (22)
Initiation of bone-specific treatment	154
Yes	112 (73)
No	42 (27)
Follow-up	118
Yes	91 (77)
No	27 (23)

SVGO = Swiss Association against Osteoporosis

tended the conference in Interlaken 2012. Of those, 25% took part in the interview, corresponding to approximately 10% of all board-certified or trainee gynaecologists in Switzerland. Since most respondents were board-certified gynaecologists (69%) and above the age of 30 (90%), our cohort represents the gynaecological outpatient care situation in Switzerland quite well.

In the specific area of osteoporosis there are several barriers to optimal bone healthcare at the patient, provider and healthcare system level [8]. Barriers at the patient level include lack of awareness and understanding of the potential morbidity and mortality of untreated osteoporosis [9]. In addition, there are multiple patient specific characteristics that affect the likelihood of being diagnosed with and treated for osteoporosis [10–16]. Potential barriers at the physician level are also numerous and include lack of awareness of the potential morbidity, mortality and healthcare costs associated with osteoporosis, lack of time and, most importantly, uncertainty about the indications for DXA testing and for initiation of bone-specific treatment [9].

Physicians' adherence to national guidelines for bone healthcare has been investigated before. However, most studies have been addressed the management of long-term systemic glucocorticoids [15, 17–23], and of postmenopausal women in the primary care setting by either ana-

lysing the rate of adequately screened and treated women [10, 11, 16, 24–34], or by asking physicians about their adherence to national guidelines [35–39], respectively. So far, there has not been any study investigating the gynaecologists' application of national guidelines, although their significance in bone healthcare has been proven before [10, 11, 29, 30].

Previous studies have reported varying numbers for screening rates in at-risk postmenopausal women, ranging from 19%–96% [16, 25, 26, 30, 32]. Our results are comparable to those of a recent American study in postmenopausal women, which showed a screening rate of 79% for gynaecologists that was significantly higher than for general internists [30]. The initiation of a bone-specific treatment also varied tremendously, ranging from approximately 30%–93% [10, 11, 16, 25, 28, 29, 32, 33], with non-bone specialists being as "aggressive" in their choice of medication as bone specialists in at least one study [31]. Information on the frequency of follow-ups has been rarely reported and was low in one study (13%) [32]. According to our study, board-certified gynaecologists in Switzerland have a high adherence to SVGO recommendations, reaching almost 75% for each task. Unfortunately, this is not true for trainee gynaecologists. In addition, there seems to be a mismatch between most gynaecologists' point of view that bone healthcare is within their field of expertise and those

Table 2: Logistic regression analysis for prediction of the chance of the subject osteoporosis being addressed during a consultation, of (not) performing diagnostic procedures in accordance with Swiss Association against Osteoporosis (SVGO) recommendations, of (not) initiating a bone-specific treatment, and of performing follow-ups.

	Odds ratio	95% confidence interval	p-value
Prediction of the chance of the subject osteoporosis being addressed during a consultation			
Board-certified gynaecologist	3.08	1.39–6.78	0.005
Trainee gynaecologist	0.38	0.17–0.85	0.019
Workplace university clinic	0.31	0.14–0.69	0.005
Prediction of the chance of performing diagnostic procedures according to SVGO-recommendations			
Board-certified gynaecologist	2.17	1.08–4.34	0.029
Prediction of the chance of NOT performing diagnostic procedures according to SVGO-recommendations			
Respondent's age below 30 years	3.78	1.45–9.83	0.006
Trainee gynaecologist	2.06	1.01–4.21	0.048
Workplace university clinic	3.61	1.78–7.34	<0.001
Other workplaces	5.35	1.55–18.48	0.008
Prediction of the chance of initiating a bone-specific treatment			
Respondent's age above 50 years	1.88	1.03–3.44	0.039
Board-certified gynaecologist	3.59	1.93–6.69	<0.001
Workplace other clinics	2.58	1.08–6.16	0.032
Prediction of the chance of NOT initiating a bone-specific treatment			
Respondent's age below 30 years	0.28	0.09–0.79	0.017
Trainee gynaecologist	0.36	0.19–0.68	0.002
Workplace university clinic	0.37	0.19–0.71	0.003
Prediction of the chance of performing follow-ups			
Female	0.27	0.09–0.84	0.024

Table 3: Logistic regression analysis for prediction of the chance of initiating a bone-specific treatment combining two or three covariable.

	Regression coefficient	Odds ratio	95% confidence interval	p-value
Respondent's age below 30 AND workplace university clinic	–2.68	0.069	0.01–0.61	0.016
Trainee gynaecologist AND workplace university clinic	–1.39	0.25	0.09–0.71	0.010
Respondent's age below 30 AND trainee gynaecologist AND workplace university clinic	–2.68	0.069	0.01–0.61	0.016

actually addressing the subject during their consultation. In addition, independent of medical education, most gynaecologists performing diagnostic procedures for osteoporosis seem to be either unaware of laboratory analysis being part of it or not competent enough for this diagnostic step.

As mentioned above, the likelihood of performing appropriate bone healthcare depends on various factors including the physicians' characteristics. In our study, chances were highest in board-certified gynaecologists, and, additionally, for prescription, also in doctors above the age of 50. However, considering the impact of sex, we found a trend for male gynaecologists to perform diagnostic procedures less often and for female care providers to perform follow-ups less often. This partly contrasts with previous studies showing that female doctors more often knew osteoporosis guidelines [35], whereas patients seen by male physicians were less likely to have care that was adherent with guidelines [25]. This slight discrepancy may result from the association between age and sex in our study, with a significant trend for subjects being more likely to be female with decreasing age.

Experience in bone healthcare might be less broad in younger doctors. This is especially true for trainee gynaecologists. In Switzerland, to become a board-certified gynaecologist, trainee gynaecologists are obliged to work in clinics with differing levels of specialisation, thus providing a broad medical experience and expertise. However, there are several possible explanations as to why the likelihood of not performing diagnostic procedures and initiating a bone-specific treatment was increased in trainee gynaecologists, and respondents below the age of 30. Most trainee gynaecologists are not much involved in outpatient care dealing with aspects of menopausal transition such as bone healthcare, and osteoporosis. The focus of medical training lies on obstetrics and gynaecological surgery. Therefore, for most (trainee) gynaecologists the organ bone is not as familiar as, for example, the uterus or the mammary gland. As a consequence, gynaecologists working in private practice have to acquire their knowledge on bone healthcare quite late, possibly even after board certification. However, as we could demonstrate, they do succeed. Furthermore, as a result of increasing specialisation within the field of gynaecology and obstetrics, obtaining the board certificate within the shortest time period possible and acquiring broad experience in all sub-domains at the same time is almost impossible. This might also be the reason why bone healthcare was less frequently offered by all physicians at university clinics. Since all university clinics provide a section on gynaecological endocrinology and reproductive medicine, most patients will be transferred to the respective colleague within the clinic.

Our study has some limitations. As interviews were performed at a conference during the breaks, some conference participants might have attended other exclusive meetings that did not allow for socialising. Thus only 25% of participants could be recruited for interviews. According to the interview design some respondents might not have answered the questions addressing treatment initiation and monitoring, if the answer to the question about performing diagnostic procedures was already negative. Thus, the cohort size of respondents became smaller from one question

to another. Furthermore, the medical students performing the interviews might have preferentially addressed conference attendees they considered to be more approachable. However, as they performed interviews during a whole day initial reserve would have disappeared with time. Finally, we only captured the gynaecologists' perspective and were not able to compare their self-concept with actual numbers from patient records.

Although differences in international healthcare systems do exist, our findings emphasise the role of gynaecologists not only for specialised, but also for primary healthcare in women. Since various multifaceted interventions targeting high-risk patients and their primary care providers have only resulted into modest improvement in bone healthcare, it may be worthwhile to develop and evaluate more intensive multidisciplinary interventions that target various health professionals including gynaecologists [8]. Furthermore, with the introduction of Swiss Diagnosis Related Groups (SwissDRG) for inpatient care in 2012, clinics will be forced to improve their efficiency. This will lead to an increased administrative burden, especially for trainee gynaecologists, and a redistribution of cases and human resources depending on cost efficiencies. In order to avoid the internationally existing osteoporosis treatment care gap, it is mandatory to develop a multidisciplinary approach to make certain of appropriate bone healthcare in at-risk patients.

Conclusion

Bone healthcare is part of the gynaecologists' expertise. Our study suggests that the current training in the field of obstetrics and gynaecology does not sufficiently cover training in women's health, including bone healthcare, by far the most important cohort of women consulting in private practice. Despite the expected increasing financial pressures within the Swiss healthcare system, education covering all aspects of bone healthcare needs to be improved. However, since this is a small study our findings may not reflect the findings in the total population.

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Correspondence: Petra Stute, MD, Department of Gynaecologic Endocrinology and Reproductive Medicine, University Women's Hospital, Effingerstrasse 102, CH-3010 Berne, Switzerland, [petra.stute\[at\]insel.ch](mailto:petra.stute[at]insel.ch)

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