Short Communication

Breast Cancer Screening in High-Risk Women

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INTRODUCTION

There is circumstantial evidence that population-based screening programmes can reduce breast cancer mortality in women aged 40–70 years old. The value of screening in high-risk groups such as women with a positive family history of breast cancer is unproven.

In the meantime a rapidly increasing number of high-risk women seek counselling about strategies to reduce their risk of breast cancer death, such as intensive surveillance. As for

ethical reasons no randomized trials can be performed, the effect of screening these women has to be evaluated by means of observational studies. In several specialized centers in the Netherlands, women with a more than 2 times increased risk of breast cancer (BC) (lifetime > 15%) are being screened regularly.

In this study the first results of screening high-risk women in the Rotterdam Cancer Center/University Hospital are described.

PATIENTS AND METHODS

According to Dutch national guidelines, high-risk women are screened by (at least) biannual clinical breast examination (CBE) and yearly mammography. The minimum age at entry is 25 years. When indicated, additional investigations by ultrasound and/or MRI are performed. A database was set up in which family and individual characteristics, screening data and final outcome of screening are registered. To date, 810 women were screened at least once.

By means of DNA-diagnosis or genetic-epidemiologic tables [1], three risk groups were defined (see Table 1).

Table 1

Risk group	Lifetime risk of BC	Criteria	No. of women
1 Carriers	60–85%	proven carriers of a BRCA1/2 mutation (DNA-analysis)	71
2 High risk	35–50%	* HBOC * ≥ 3 close relatives with BC * 2 relatives with BC < 50	531
3 Moderate risk	15–35%	all others not fulfilling the above mentioned criteria	208

HBOC = hereditary breast and ovarian cancer; BC = breast cancer.

Table 2
Clinical and pathological characteristics of 18 breast cancers diagnosed during screening

Patient	Age at diagnosis	Risk category	Screening round	Mode of detection	Histology	Tumour size (mm)	Nodal status
1	28	1	interval	BSE	ductal	40	2/13
2	44	1	interval	BSE	ductal	12	0/19
3	39	1	interval	BSE	ductal	7	3/21
4	70	2	13th incident	mammography	DCIS	n.m. ¹	n.d.
5	66	2	9th incident	mammography	DCIS	7	n.d.
6	25	2	14th incident	mammography	ductal	6	2/34
7	44	2	3rd incident	mammography	ductal	n.m. ¹	0/6
8	35	2	12th incident*	CBE + mammography	ductal	12	0/22
9	38	2	6th incident*	CBE + mammography	ductal	n.m. ²	7/13
10	43	2	prevalent	CBE + mammography	ductal	9	0/13
11	35	2	prevalent	CBE + mammography	ductal	8	1/18
12	60	2	2nd incident	CBE + mammography	ductal	10	0/10
13	29	2	8th incident	mammography	medullar	15	0/16
14	58	2	2nd incident	mammography	DCIS	n.m. ¹	n.d.
15	48	2	interval	BSE	ductal	20	0/18
16	49	2	6th incident	CBE + mammography	ductal	20	0/15
17	56	3	17th incident	CBE + mammography	ductal	15	0/21
18	51	3	8th incident*	CBE + mammography	lobular	12	1/11

*symptomatic at the time of screening; ¹multifocal tumour; ²ill-defined border.

Abbreviations used: BSE = breast self examination; CBE = clinical breast examination; DCIS = ductal carcinoma in situ; n.m. = not measurable; n.d. = not done.

Table 3
Observed and expected numbers of breast cancer

Risk group	Mean age at 1st screening (range)	Observed no. of breast cancers*	No. of person-years at-risk	Detection rate per 1000	Expected no. of breast cancers**	Ratio observed/expected
BRCA1/2 carriers (1)	37 (25–63)	3	136	22	0.2	15
High risk (2)	38 (25–68)	10	1159	9	1. 7	6
Moderate risk (3)	37 (25–67)	2	458	4	0.7	2.5
Overall/total	37	15	1753	8.5	2.6	5.5

*DCIS excluded. ** for population aged 40–50 according to National Cancer Registry 1990–1995.

FOLLOW-UP

Two patients (1 and 9) relapsed; both died of metastatic disease 2.5 and 4 years, respectively, after the diagnosis. One additional patient (4) died of another cause (CML).

SUMMARY MEASURES

See Table 4.

CONCLUSIONS

It is possible to identify young women at high familial risk for breast cancer. The number of cancers detected in this population was on average 5 times greater than expected and related to the risk category.

Data will be included in a national multi-centre study to assess the short-term results of screening and predict long-term effects, such as mortality reduction. Further, the value of MRI as a

Table 4

Nodal status ¹ :	negative	60%	(9/15)
	positive	40%	(6/15) ²
Tumour size ^{1,3} :	< 10 mm	31%	(4/13)
	10–20 mm	61%	(8/13)
	> 20 mm	8%	(1/13)
Sensitivity = a/a + c with a defined as:			
	1) all screen-detected tumours (n = 14)	78%	(14/18)
	2) asymptomatic screen-detected (n = 11)	61%	(11/18)

¹invasive tumours only; ²two pN1a; ³two tumours with unknown size.

potential alternative for mammography will be investigated.

References

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