

Detection of breast cancer

Key observations

- Although there has been a breast cancer screening programme in Morocco since 2010, more than 95% of the women who registered at the two centres (CM-VI and INO) were symptomatic at the time of diagnosis.
- The median interval between onset of symptoms and first medical consultation (access delay) was 6 months. Although there are no universal standards for access delay, in many well-organized health systems the benchmark is 4 weeks.
- There was a trend showing reduction of access delay over time. This was more apparent for the patients registered at INO and could be an effect of the screening programme.
- Other than high parity, no sociodemographic factors had any significant impact on the access delay.
- Overall, more than half of the women had diagnosis of breast cancer confirmed on cytology and/or histopathology before registration at the centres. This proportion increased over time in both centres, probably reflecting the improved capacity of the health system to diagnose cancers in general (non-oncology) hospitals.
- The median interval between diagnostic confirmation and registration at an oncology centre was 1.5 months at CM-VI and 0.7 months at INO. This interval remained constant at CM-VI, but at INO it decreased over the period of the study.

4.1. Symptoms of breast cancer at first medical consultation

Table 4.1 shows that almost all the patients (97.3%) had one or more symptoms suggestive of breast cancer at the time of first medical consultation. The percentage distribution does not add up to 100% because some patients had multiple

symptoms. A lump in the breast was the most common symptom and was reported by 90.5% of the patients. Breast pain was the second most frequent symptom; this was reported by 11.3%.

The breast cancer screening programme in Morocco was launched in 2010 and reasonably high coverage was reported in 2015 and 2016 (Basu et al., 2018). Our retrospective study

could not estimate the proportion of patients referred through the screening programmes, because this information was not systematically documented in the case records. Given the steadily increasing participation in the breast cancer screening programme, there is a need to capture such information at the cancer centres and share it with the screening programme for quality assurance.

Table 4.1. Initial symptoms reported by the patients

	CM-VI		INO		Total	
	n	(%)	n	(%)	n	(%)
No. of patients assessed ^a	863		1158		2021	
Symptoms						
Any symptom	827	(95.8)	1140	(98.4)	1967	(97.3)
Breast lump	743	(86.1)	1085	(93.7)	1828	(90.5)
Discharge from nipple	30	(3.5)	33	(2.8)	63	(3.1)
Nipple ulceration	11	(1.3)	11	(0.9)	22	(1.1)
Nipple retraction	47	(5.4)	47	(4.1)	94	(4.7)
Breast pain	123	(14.3)	106	(9.2)	229	(11.3)
Bulging breast or skin retraction	5	(0.6)	22	(1.9)	27	(1.3)
Peau d'orange	13	(1.5)	48	(4.1)	61	(3.0)
Axillary nodule	28	(3.2)	47	(4.1)	75	(3.7)
Others	44	(5.1)	44	(3.8)	88	(4.4)

CM-VI, Centre Mohammed VI pour le traitement des cancers; INO, Institut National d'Oncologie Sidi Mohamed Ben Abdellah.

^a Symptoms were not recorded in a few patients.

4.2 Interval between onset of symptoms and first medical consultation

The clinicians routinely documented in every case record the approximate date of onset of symptoms and the date of first medical consultation that led to referral for cancer diagnosis (the access delay). We could estimate the interval between these two dates in 801 patients (87.5% of the total cases) from CM-VI and 1031 patients (85.6% of the total cases) from INO. The median interval remained constant at 6 months (IQR, 3–12 months) over the study time periods for patients registered at CM-VI but decreased from 7 months (IQR, 4–12 months) during 2008–2010 to 5.0 months (IQR, 2–12 months) during 2015–2017 for those registered at INO (Fig. 4.1).

We categorized the interval between the onset of symptoms and first medical consultation (access

delay) into early (< 6 months), delayed (6–< 12 months), and very late

(≥ 12 months) and did multivariate logistic regression analysis to identify possible factors that could influence the interval (Table 4.2).

The proportion of women with symptoms who sought early consultation increased significantly over time; this trend was more obvious for the patients registering at INO. The sociodemographic characteristics of the patients, other than high parity, did not have any significant effect on the access delay when all patient characteristics were adjusted for in the regression model. Younger women were more likely to seek early consultation, although the difference between the age groups was not statistically significant.

WHO categorized the delays in cancer diagnosis into access delay (the interval between onset of symptoms and first medical consultation) and systems or diagnostic delay (the interval between first medical consultation and diagnostic confirmation) (WHO, 2017). Either of these delays in diagnostic confirmation of cancer

Fig. 4.1. Box plot showing longest duration of symptoms (months) before first medical consultation (access delay) by period of registration and centre. CM-VI, Centre Mohammed VI pour le traitement des cancers; INO, Institut National d'Oncologie Sidi Mohamed Ben Abdellah.

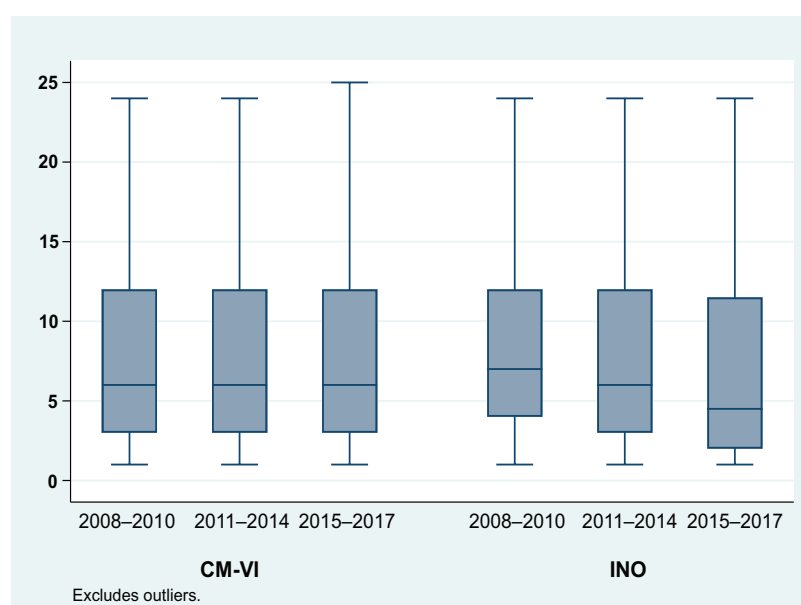


Table 4.2. Access delay and its determinants

Characteristics	Access delay			Crude Risk ratio (95% CI)	Adjusted Risk ratio (95% CI)
	< 6 months n (%)	6–< 12 months n (%)	≥ 12 months n (%)		
No. of patients with symptoms	850	433	549		
Centre					
CM-VI	370 (46.2)	183 (22.8)	248 (31.0)	1.00	1.00
INO	480 (46.6)	250 (24.2)	301 (29.2)	0.98 (0.88–1.07)	0.94 (0.85–1.03)
Period of diagnosis					
2008–2010	191 (38.0)	147 (29.2)	165 (32.8)	1.00	1.00
2011–2014	333 (47.0)	167 (23.6)	208 (29.4)	0.85 (0.76–0.95)	0.88 (0.76–0.99)
2015–2017	326 (52.5)	119 (19.2)	176 (28.3)	0.78 (0.69–0.87)	0.80 (0.68–0.92)
Age at diagnosis (years)					
< 30	19 (52.8)	9 (25.0)	8 (22.2)	1.00	1.00
30–39	145 (49.0)	87 (29.4)	64 (21.6)	1.14 (0.78–1.59)	1.18 (0.80–1.65)
40–49	321 (50.6)	140 (22.1)	173 (27.3)	1.11 (0.96–1.27)	1.10 (0.96–1.27)
50–59	226 (43.4)	117 (22.5)	178 (34.2)	1.25 (1.07–1.43)	1.19 (1.00–1.42)
60–69	99 (41.1)	59 (24.5)	83 (34.4)	1.38 (1.15–1.62)	1.31 (1.03–1.61)
≥ 70	39 (37.9)	21 (20.4)	43 (41.7)	1.54 (1.21–1.92)	1.44 (1.09–1.85)
Residence					
Urban	672 (46.5)	346 (23.9)	428 (29.6)	1.00	1.00
Semi-urban	73 (44.8)	38 (23.3)	52 (31.9)	0.99 (0.84–1.16)	1.01 (0.85–1.19)
Rural	105 (47.1)	49 (22.0)	69 (30.9)	0.97 (0.84–1.11)	1.04 (0.90–1.20)
Social security coverage					
None	211 (39.4)	144 (26.9)	180 (33.6)	1.00	1.00
RAMED	425 (51.0)	176 (21.1)	232 (27.9)	0.82 (0.74–0.91)	0.93 (0.81–1.06)
CNOPS	59 (45.7)	28 (21.7)	42 (32.6)	1.10 (0.91–1.33)	1.17 (0.94–1.40)
CNSS	61 (50.4)	27 (22.3)	33 (27.3)	0.90 (0.74–1.09)	0.99 (0.80–1.20)
Marital status					
Single	129 (46.9)	62 (22.5)	84 (30.5)	1.00	1.00
Married	544 (47.1)	280 (24.3)	330 (28.6)	1.00 (0.88–1.15)	0.97 (0.80–1.14)
Widowed	76 (40.2)	40 (21.2)	73 (38.6)	1.21 (1.03–1.41)	1.03 (0.85–1.22)
Separated	49 (43.4)	34 (30.1)	30 (26.5)	1.02 (0.83–1.23)	0.96 (0.77–1.17)
Parity					
0	181 (45.8)	92 (23.3)	122 (30.9)	1.00	1.00
1 or 2	196 (45.4)	121 (28.0)	115 (26.6)	0.97 (0.83–1.12)	0.93 (0.77–1.09)
3 or 4	232 (50.4)	95 (20.7)	133 (28.9)	0.84 (0.73–0.97)	0.83 (0.69–0.97)
≥ 5	174 (44.8)	95 (24.5)	119 (30.7)	0.96 (0.82–1.10)	0.85 (0.70–1.00)
Menopausal status					
Premenopausal	465 (50.0)	225 (24.2)	240 (25.8)	1.00	1.00
Postmenopausal	334 (42.7)	182 (23.2)	267 (34.1)	1.27 (1.15–1.40)	1.12 (0.98–1.28)
Family history of breast cancer					
No	693 (46.7)	350 (23.6)	440 (29.7)	1.00	1.00
Yes	98 (44.5)	58 (26.4)	64 (29.1)	1.13 (0.97–1.31)	1.15 (0.99–1.32)

CI, confidence interval; CM-VI, Centre Mohammed VI pour le traitement des cancers; CNOPS, Caisse Nationale des Organismes de Prévoyance Sociale; CNSS, Caisse Nationale de Sécurité Sociale; INO, Institut National d'Oncologie Sidi Mohamed Ben Abdellah; RAMED, Régime d'Assistance Médicale.

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may significantly affect survival after treatment, and both should be kept as short as possible. WHO recommends that the interval between the onset of symptoms and treatment initiation should not exceed 3 months. A systematic review of high-quality studies observed that the 5-year survival for breast cancer was 12% lower in patients for whom the interval between the onset of symptoms and treatment initiation was longer than 3 months compared with those with shorter delays; the former group also had nearly 50% higher probability of dying from breast cancer (OR for death, 1.47; 95% CI, 1.42–1.53) (Richards et al., 1999a).

There are no universal standards for the ideal interval between the onset of symptoms and first medical consultation, although in many well-organized health systems the benchmark is 4 weeks (WHO, 2017). The average interval between onset of symptoms and first medical consultation among the patients with breast cancer in Morocco was less than that reported in many LMICs but significantly higher than that observed in high-income countries. A systematic review including about 25 000 patients with breast cancer in sub-Saharan Africa reported that the average duration of symptoms at the time of first presentation was between 8 months and 12 months in most studies (Jedy-Agba et al., 2016). This is in stark contrast to the interval reported in countries with well-organized

health systems. The Danish Breast Cancer Cooperative Group reported that among the 7608 breast cancers detected between August 1977 and November 1982, the median interval between first symptoms and first visit to the doctor was only 13 days (Afzelius et al., 1994). A very large survey of 6588 patients with breast cancer in 12 lower and upper middle-income countries showed that the mean interval between the onset of symptoms and first medical visit ranged from 3.4 weeks in Hungary to 6.2 weeks in Latvia; the overall mean was 4.7 weeks (Jassem et al., 2014).

There are several determinants of access delay, such as age, education, level of awareness on cancer, myths and stigma around the disease, and access to health services, and our retrospective study could assess only a few of them. Systematic reviews reported that older women tend to report the symptoms later, irrespective of the study settings, an observation that matches with our findings (Ramirez et al., 1999; Richards et al., 1999b; Arndt et al., 2002). A study of Nigerian patients with breast cancer observed ignorance of the seriousness of breast symptoms, belief in traditional herbal medicine and spiritual healing, and fear of mastectomy as the most common reasons for access delay (Ibrahim and Oludara, 2012). A multicentre study in Morocco involving 1440 women with a mean age of 40 years showed that

most of the women had poor understanding of the risk factors and early symptoms of breast cancer (Benai-cha et al., 2016).

4.3 Proportion of cancers detected before registration at the oncology centres

Overall, 47.0% (430/915) of the patients registered at CM-VI and 64.7% (780/1205) of those registered at INO had a diagnosis of breast cancer that had already been confirmed on cytology and/or histopathology at the time of registration. The proportion increased over time both at CM-VI (2008–2010: 39.1%; 2011–2014: 52.8%; and 2015–2017: 45.7%) and at INO (2008–2010: 52.1%; 2011–2014: 71.2%; and 2014–2017: 66.2%), possibly because of improvement in the capacity of the health system to diagnose cancers in general hospitals. The median interval between diagnostic confirmation and registration at the oncology centre was 1.5 months (IQR, 0.8–2.9 months) at CM-VI and 0.7 months (IQR, 0.3–1.8 months) at INO. This interval remained constant at CM-VI over time, but at INO it decreased from 1 month in 2008–2010 to 0.4 months in 2015–2017. The longer interval for the patients at CM-VI is explained by the fact that most of them had received primary surgery elsewhere, which was not the case at INO (discussed in subsequent chapters).

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