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BREAST CANCER STAGE IN ELDERLY WOMEN IN FRANCE (2009-2019)

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OBJECTIVE

In France, breast cancer (BC) incidence has been increasing since 1990 in old women (≥ 70 years). In addition to organized screening (OS) implemented in 2004 for women aged 50-74 years old, there is an opportunistic screening (OpS) that concerns all women, even if it is more frequent among young women (respectively 36%, 11%, 13% in women under 50, 50-74 and 75-84 years in 2016-17 (*Quintin C et al., 2022)*). Few population-based data are available on BC stage among French old women in France.

This population-based study aimed **to describe BC stage and its temporal trends in French elderly women**.

MATERIAL & METHODS

Data were provided by five French cancer registries. **Primary BC diagnosed from 2009 to 2019 in women aged 70 years and more** were randomly sampled among all incident BC from cancer registries. Only women with **invasive or in situ carcinomas** were included. Women who presented prior in situ or invasive BC were also excluded.

Stage at diagnosis was defined into 5 categories *(0-in situ, I-early localized, II-localized but more extensive, III-locally advanced, IV-metastatic)* according to TNM classification 7Th edition. pTNM was used if complete surgery was the first treatment, otherwise cTNM was used.

Analyses were performed for **3 age groups: 70-74 years (targets of OS), 75-79 (outside OS), ≥ 80 (far removed from OS)**

BC stage distribution and its temporal trends were described :
➢ **by detection mode**: OS, OpS, unscreened
➢ **by socioeconomic environment** estimated by the French European Deprivation Index, a standardized ecological index defined in 5 categories ranging from Q1-most affluent to Q5-most deprived.
Data on EDI were only available for women with BC diagnosed in 2009-2018. Due to small numbers, two groups were defined: *affluent (Q1-Q3)* and *deprived women (Q4-Q5)*.

*S*mall numbers and missing socio-economic data for 2019 cases resulted in low statistical power and difficult interpretations of results.
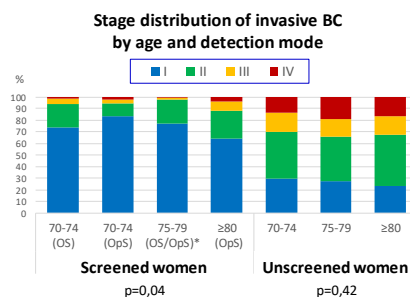
RESULTS

- **2424 women included,** mostly aged 80 years and more (42%).
- **In situ BC** (7% of all cancers) decreased with age (from 12% to 3%) and remained stable between 2009 and 2019 (p>0.2).
- **Invasve BC** were mostly stage I in women aged 70-74 (55%) and 75-79 years (40%) while stage II were more frequent in women ≥ 80 years (40%).
- **OpS was more common in women aged 75-79 years** (27% versus 10-12% for the others) while OS detected 60% of invasive BC in the youngest group.

Characteristics, n (%)	70-74	75-79	≥ 80
Cases	858 (35)	557 (23)	1009 (42)
Socioeconomic environment (p=0,44)			
Affluent (Q1-Q3)	472 (63)	304 (61)	534 (60)
Deprived (Q4-Q5)	281 (37)	196 (39)	362 (40)
Unknown*	105	57	113
Stage at diagnosis (p<0,001)			
In situ	106 (12)	33 (6)	28 (3)
Invasive	752 (88)	524 (94)	981 (97)
Stage of invasive BC (p<0,001)			
I	468 (63)	221 (43)	249 (28)
II	181 (24)	168 (33)	368 (42)
III	58 (8)	58 (11)	133 (15)
IV	37 (5)	66 (13)	136 (15)
Unknown	8	11	95
Detection mode of invasive BC (p<0,001)			
Organized screening (OS)	436 (60)	24 (5)	
Opportunistic screening (OpS)	88 (12)	141 (27)	101 (10)
Unscreened	202 (28)	359 (68)	880 (90)
Unknown	26		

*Data not available for BC diagnosed in 2019

- **In women detected by screening (OS/OpS), invasive BC were diagnosed at earlier stage**, with less stage I in the oldest group (≥ 80). For unscreened BC, stage distribution was similar regardless of age

Stage distribution of invasive BC by age and detection mode

Screened women p=0,04 — Unscreened women p=0,42

Time trends of INVASIVE breast cancers

70-74 years

Detection mode p=0.2 — **Stage** p=0.8

Stage by detection mode
Screened women (by OS) p=0.5 — Unscreened women p=0.5

Stage by socioeconomic environment
Affluent women p=0.4 — Deprived women p=0.9

- **BC detected by OS seemed to decrease since 2012,** in favor of Ops (p=0.6).
- **Stage I tended to decrease since 2012 in women detected by OS and affluent ones** (p=0.5). No trend was observed in those detected by OpS (data not shown), in unscreened and deprived women.

75-79 years

Detection mode p=0.13 — **Stage** p=0.1

Stage by detection mode
Screened women (by OS or OpS) p=0.6 — Unscreened women p=0.04

Stage by socioeconomic environment
Affluent women p=0.2 — Deprived women p=0.4

- Screened BC were less frequent since 2012 (p=0.1).
- **Stage IV decreased between 2009 and 2019.** This trend was observed in unscreened and affluent women but was only statistically significant for unscreened women.

≥ 80 years

Detection mode p=0.8 — **Stage** p=0.2

Stage by detection mode
Screened women (by OpS) p=0.9 — Unscreened women p=0.5

Stage by socioeconomic environment
Affluent women p=0.01 — Deprived women p=0.5

- Detection mode remained stable on the period.
- **Stage I decreased while stage II increased.** This trend was observed in unscreened and affluent women, only significant for affluent ones. Among screened and deprived women, stage II tended to increase instead of stages III-IV (p≥0.4).

DISCUSSION - CONCLUSION

➢ Even in old women, BC are earlier if they are detected by screening (OS or OpS).
➢ Early BC (stage I) decrease with age while all the other BC (stages II-IV) increase, probably related to less screening with age.
➢ About time trends
  o The decrease of stage I BC in women aged 70-74 years is concomitant with lower OS participation in France since 2011-12 (52,3% in 2011-12 versus 46.6% in 2020-21).
  o The decrease in stage IV BC in the 75-79 group could be explained by the fact that these women -contrary to the oldest one- still benefit from the effects of OS (i.e. BC could not progress because they were detected early when the women participated in OS). Another hypothesis: these women continue to adopt preventive behaviors (through OpS), which limits advanced BC.
➢ In deprived women, stage distribution did not change over time.