A retrospective observational study on neoadjuvant chemotherapy in older adults based on the Joint Breast Cancer Registry Singapore

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Introduction

According to the SEER database, 43.4% of all newly diagnosed breast cancers occurred in women aged 65 years and older. Despite a relatively high prevalence of older adults with newly diagnosed breast cancer, these patients are often under-represented in the pivotal neoadjuvant trials. As a result, treatment recommendations are often based on subgroup analyses and extrapolation of study results from younger patients.

Objectives

To examine the clinicopathological characteristics and pathological complete responses of older adults with breast cancer who underwent neoadjuvant chemotherapy (NAC)

Methods

Data from the Joint Breast Cancer Registry (JBCR) were collated from October 2014 to October 2019. Detailed clinical, pathological information, outcomes post NAC and adverse events were retrieved from electronic medical records. Pathological complete response(pCR) was defined by the absence of residual disease in the breast and lymph nodes following completion of NAC

Results

Of the 353 patients underwent NAC, 66(18%) patients were older adults aged ≥ 65 years. The median age was 69 (65-83) years. 31(46%) diagnosis were HER2+ disease. 13(19%) were triple negative breast cancer (TNBC). 18(27%) patients were unable to complete NAC, 10(15%) due to side effects while 5 (7.5%) had progressive disease during treatment. NAC treatment options and treatment response are shown in Table 2

Table 1 : Patient Characteristics

	No. (%)
Breast cancer diagnosis that are 65 years and above	66
median age (Range)	69 (65-83)
median ECOG(range)	0 (0-2)
Clinical T Staging	
2	14 (21)
3 to 4	52 (79)
Clinical N Staging	
0	14 (20)
1 to 3	51 (79)
nX	1
HR status	
Negative	25(37)
Positive	41(63)
Human epidermal growth factor receptor 2 (HER2)	
Negative	35 (54)
Positive	31 (46)
NACcompleted/ NAC not completed	48(72) / 18 (27)
IncompletionReason	
PD	5(27)
Side effects	10(55)
refused treatment	3 (16)

Pathological Complete Response Rates

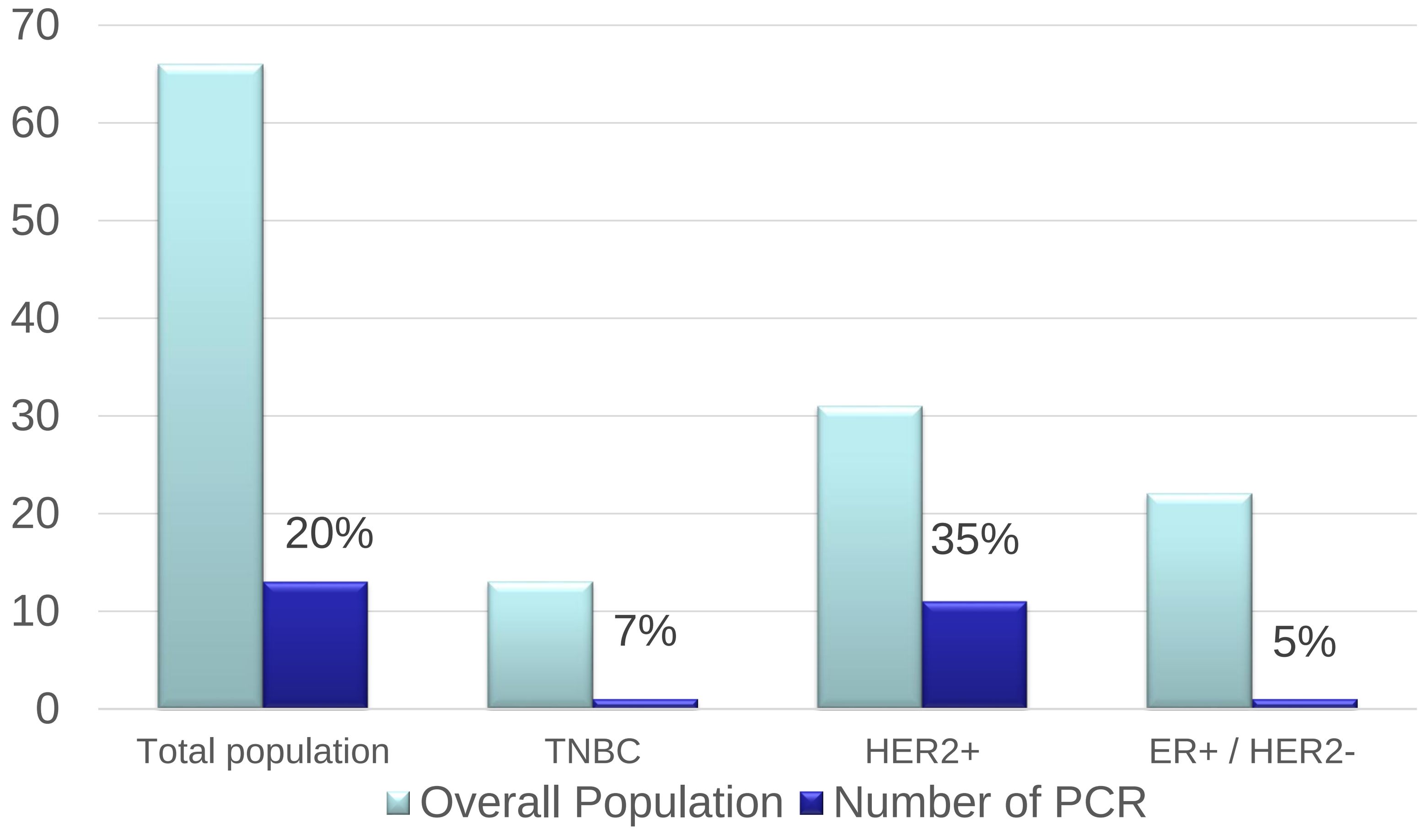

Table 2 : NAC treatment and response

	Total No. (%)	HER2+ No. (%)	HER2- No. (%)	P*
No of Patients	66 (100.0)	31 (100.0)	35 (100.0)	-
NAC therapy				
Chemotherapy only/1	33 (49.3)	0 (-)	32 (91.7)	<0.001
Hormone therapy only/2	2 (3.0)	0 (-)	2 (5.6)	
Hormone therapy/2 & chemotherapy/1	1 (1.5)	0 (-)	1 (2.8)	
Targeted therapy/3 & chemotherapy/1	29 (43.3)	29 (93.5)	0 (-)	
Targeted therapy/3 & hormonal therapy/2	2 (3.0)	2 (6.5)	0 (-)	
Chemotherapy Regimen				
Antracycline + Taxane	42	15	26	
Carboplatin (in TNBC)	4	0	4	
Taxane alone	20	14	6	
Dual Her2 blockade	15	15	0	
Among NAC non-completers:	*18*	*6*	*12*	
Reason for NAC incompletion				
PD	5 (26.3)	1 (16.7)	4 (30.8)	0.513
Adverse events	11 (57.9)	3 (50.0)	7 (61.5)	
Refused treatment	3 (15.8)	2 (33.3)	1 (7.7)	
Response to NAC treatment				
pCR	13 (19.4)	11 (35.5)	2 (5.6)	0.004
PR	49 (73.1)	19 (61.3)	29 (83.3)	
PD	5 (7.5)	1 (3.2)	4 (11.1)	

* Based on Fisher's exact test
1 Anthracycline and/or taxane chemotherapy
2 Letrozole
3 Trastuzumab and/or Pertuzumab

Conclusion

We report a cohort of older adults who had undergone NAC at our centre. Consistent with existing studies, 72 % of the patients completed NAC. In keeping with data on younger patients, older adults with HER2+ breast cancer had higher pCR. However, unlike younger women with TNBC, older adults in this study had lower rates of pCR which was also noted in a recent pooled analysis. This could reflect an intrinsic biological difference worthy of further exploration.

Declaration of conflict of interest : None