Impact of Obesity In Premenopausal Women with Early-stage HR+Her2- Breast Cancer Treated with Adjuvant Endocrine Therapy

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Background

- Premenopausal women with hormone receptor positive (HR+)/Human Epidermal Growth Factor Receptor 2 negative (Her2-) breast cancer are treated with endocrine therapy (ET) either with tamoxifen (tam) alone or ovarian function suppression (OFS) with tam or aromatase inhibitors (AI).
- Body mass index (BMI) can influence the effectiveness of ET, however, the impact of BMI on outcomes in premenopausal women remains unclear.
- Previous studies in postmenopausal women have shown worse outcomes among obese women receiving ET.

Objectives

The goal of this study is to evaluate real world use of ET in premenopausal women with HR+/Her2- breast cancer in a large multidisciplinary community breast oncology center to:

- Determine if higher BMI impacts physician's choice of endocrine therapy
- Determine how BMI effects recurrence

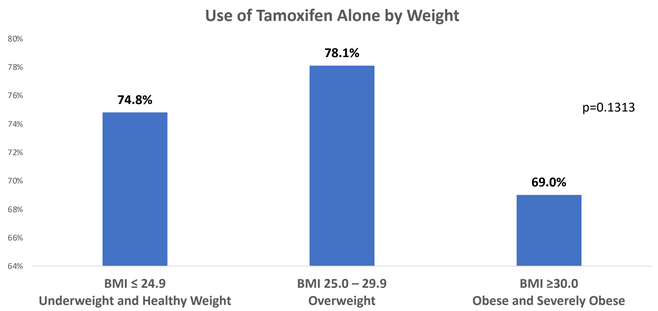
Methods

- We analyzed the medical records of premenopausal women (defined as age < 50) diagnosed with Stage 1-3 HR+/Her2- breast cancer from January 2012 to December 2023.
- We collected demographic data, clinicopathologic characteristics, and treatment information.
- Patients with non-invasive breast cancer, those who did not receive ET, or received AI alone were excluded from this study.

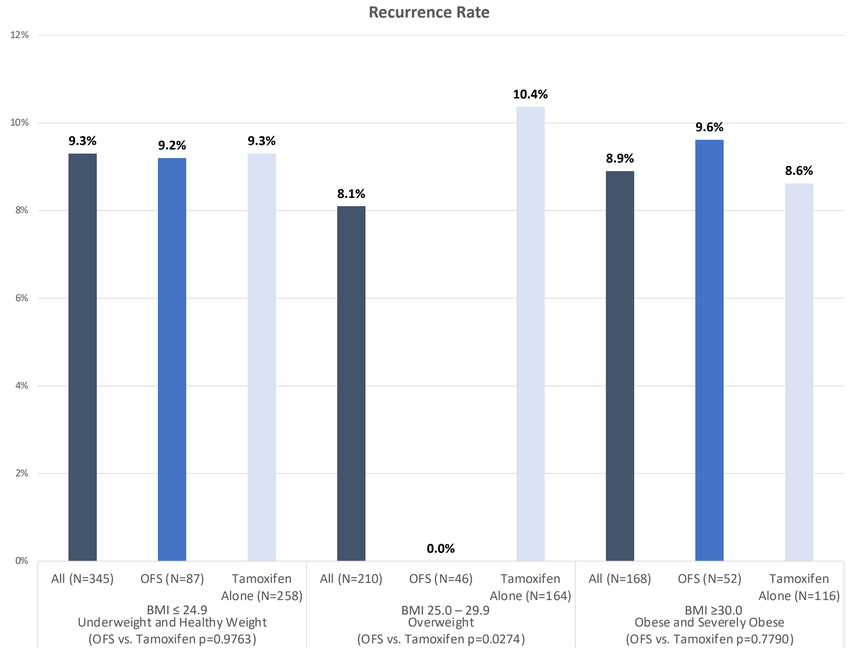
Patient Population

	BMI ≤ 24.9	BMI 25.0–29.9	BMI ≥30.0	P-value
Total patients, N = 723	345	210	168	-
Age Group [N (%)]:				0.2672
< 30	7 (2)	2 (1)	0 (0)	
30 to 39	48 (13.9)	33 (15.7)	20 (11.9)	
40 to 49	290 (84.1)	175 (83.3)	148 (88.1)	
Race [N (%)]:				**<.0001**
Non-Hispanic White	270 (78.3)	156 (74.3)	129 (76.8)	
Non-Hispanic Black	4 (1.2)	17 (8.1)	14 (8.3)	
Hispanic/Spanish Origin	10 (2.9)	11 (5.2)	16 (9.5)	
Non-Hispanic API	47 (13.6)	18 (8.6)	7 (4.2)	
Other/Unknown	14 (4.1)	8 (3.8)	2 (1.2)	
Pathologic Stage Group [N (%)]:				0.1413
1A	235 (68.1)	139 (66.2)	102 (60.7)	
1B	32 (9.3)	11 (5.2)	18 (10.7)	
2A	50 (14.5)	30 (14.3)	27 (16.1)	
2B	16 (4.6)	19 (9.0)	15 (8.9)	
3A	3 (0.9)	4 (1.9)	3 (1.8)	
3B	0 (0.0)	2 (1.0)	1 (0.6)	
3C	4 (1.2)	0 (0.0)	0 (0.0)	
Unknown	5 (1.4)	5 (2.4)	2 (1.2)	
Chemotherapy [N (%)]	135 (39.1)	88 (41.9)	79 (47)	0.2350
Endocrine Therapy Group:				0.1313
OFS [N (%)]	87 (25.2)	46 (21.9)	52 (31.0)	
Tamoxifen Alone [N (%)]	258 (74.8)	164 (78.1)	116 (69.0)	
Recurrence [N (%)]	32 (9.3)	17 (8.1)	15 (8.9)	0.8927

Results



Results



Multivariable Logistic Regression for Assessing Factors Associated with Choosing Tamoxifen Including Weight

	OR (95% CI)	P-Value
Age, per year increase	1.07 (1.03, 1.11)	**0.0003**
Grade [N (%)]:		
II vs. I	0.64 (0.41, 0.99)	**0.0450**
III vs. I	0.44 (0.26, 0.76)	**0.0033**
Pathologic Stage Group [N (%)]:		
2 vs. 1	1.09 (0.71, 1.67)	0.6825
3 vs. 1	0.66 (0.23, 1.87)	0.4344
Unknown vs. 1	0.84 (0.25, 2.88)	0.7846
Weight [N (%)]:		
Overweight vs. Healthy	1.19 (0.79, 1.81)	0.4079
Obese vs. Healthy	0.72 (0.47, 1.09)	0.1173

****Multivariable analysis controlling for age, grade, and pathologic stage did not show that increasing BMI was associated with choosing Tamoxifen (OR 0.99 (0.96-1.01), p=0.2997)**

Results

- Of 723 patients with early-stage HR+Her2- breast cancer, 52% were characterized as overweight or obese (BMI ≥ 25).
- Women with higher BMI were more likely to be diagnosed with larger tumors, but there was no significant interaction between BMI and clinical stage, node positivity, or grade.
- There was a significant difference of BMI among racial groups with Black and Hispanic patients being more likely to be obese/severely obese than white or API.
- Of the 723 patients treated with ET, 185 (25.6%) received OFS with either Tam or an AI. 538 (74.4%) of patients were treated with Tam alone.
- Increasing BMI was not associated with higher rates of treatment with tamoxifen.
- At a median follow up of 66 months, 64 patients had a breast cancer recurrence; 32 occurred in women with BMI ≤ 24.9, 17 occurred in women with BMI 25.0 – 29.9, and 15 occurred in those with BMI ≥ 30.0. (p=0.7027).
- 5-year survival rates were 98.1% in those with normal weight, 95.1% in overweight group (BMI 25.0-29.9), and 94.6% in obese group (BMI ≥ 30.0). (p=0.8083).

Conclusions and Limitations

- In contrast to currently reported data in post-menopausal women, we did not find that premenopausal women with early-stage HR+/Her2- breast cancer with higher BMIs were at an increased risk of recurrence or worse survival.
- BMI did not impact physician's choice of ET.
- This retrospective study is limited by single institution data, use of BMI as marker of obesity, and a small number of breast cancer recurrences. Additional follow up is needed in this early-stage HR+Her2- breast cancer population.

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