ANALYSIS OF CORRELATION BETWEEN WEIGHT AT DIAGNOSIS, WEIGHT GAIN AFTER BREAST CANCER TREATMENT AND RECURRENCE IN WOMEN WITH EARLY STAGE BREAST CANCER (EBC)

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Conflict of Interest Statement

The authors have declared no conflicts of interest

Background

Overweight at the time of EBC diagnosis has been linked frequently to poorer survival in most studies and some evidence suggests that women who gain weight after breast cancer diagnosis are at increased risk of cancer recurrence and death. Most previous studies on this topic have relied on retrospective chart reviews

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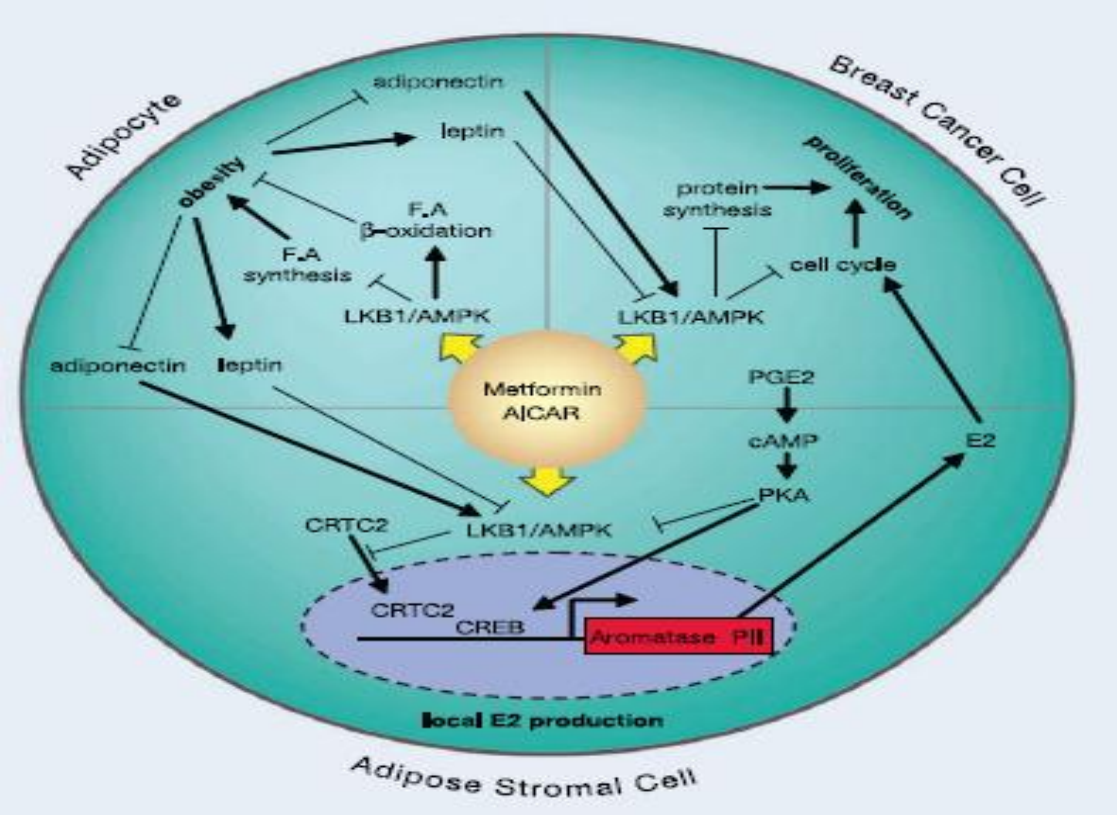
Review

Cancer Research

Obesity and Breast Cancer: Progress to Understanding the Relationship

Kristy A. Brown[1,2] and Evan R. Simpson[1,3]



Aim of the study

The aim of this prospective, observational, single-center study is to determine whether weight at diagnosis and/or weight gain after EBC treatment are associated with BC recurrence.

Methods (I)

- **Study population**: From August 1990 to March 2012 the study included 520 EBC patients (Stage I or II or IIIA), having completed breast cancer surgery, and being free of recurrence and having had no other cancers within 2 years of study entry.

- **Weight measurements**: We assessed weight and body mass index (BMI) at baseline (≤ 1 month after surgery) and 24 months from completion of breast cancer treatments (RT and/or CT) with the exception of endocrine therapy.

  BMI was calculated as weight (in kilograms) divided by height (in meters) squared.

Methods (II)

- **Outcome assessment**: BC recurrence include a local/regional cancer recurrence, distant recurrence/metastasis, development of a controlateral BC, or death from BC if a recurrence was not previously reported.

- **Statistical analysis:** The chi square test (X^2) was conducted to determine if a significant correlation exists between BC recurrence and 3 categories of BMI at baseline (lean weight: BMI <25; overweight: BMI 25-30; obese: BMI >30) and BC recurrence and weight changes after EBC treatment (loss of <1 kg/m^2; loss of ≥ 1 kg/m^2; gain of <2kg/m^2; gain of >2 kg/m^2).

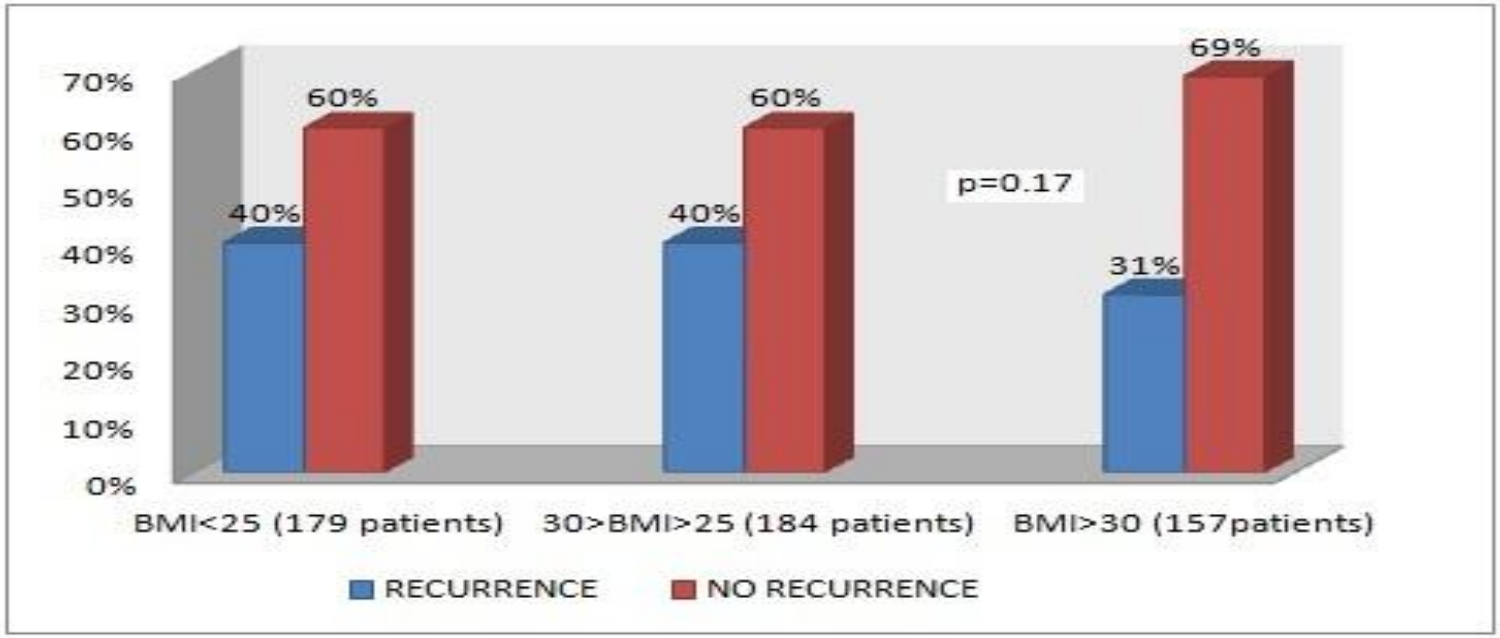
Baseline characteristics of the study population

	No	(%)
Enrolled- (%)	**520**	**100**
Mean age	**55 Years (range 28-81)**	
Mean BMI (kg/m2)		
at study entry	**26.8**	
24 months after treatment	**27.7**	
Tumor stage		
I-II	**463**	**89**
IIIA	**57**	**11**
Menopausal status		
Postmenopausal	**302**	**58**
Premenopausal	**218**	**42**
Hormone receptor status		
ER + / PGR +	**359**	**69**
ER + / PGR -	**57**	**11**
ER - / PGR -	**104**	**20**
Surgical Treatment		
Mastectomy	**146**	**28**
Conservative Surgery	**374**	**72**
Adjuvant chemotherapy		
Yes	**296**	**57**
Not	**224**	**43**

Results (I)

After a median follow up of 13 years 194 patients recurred:

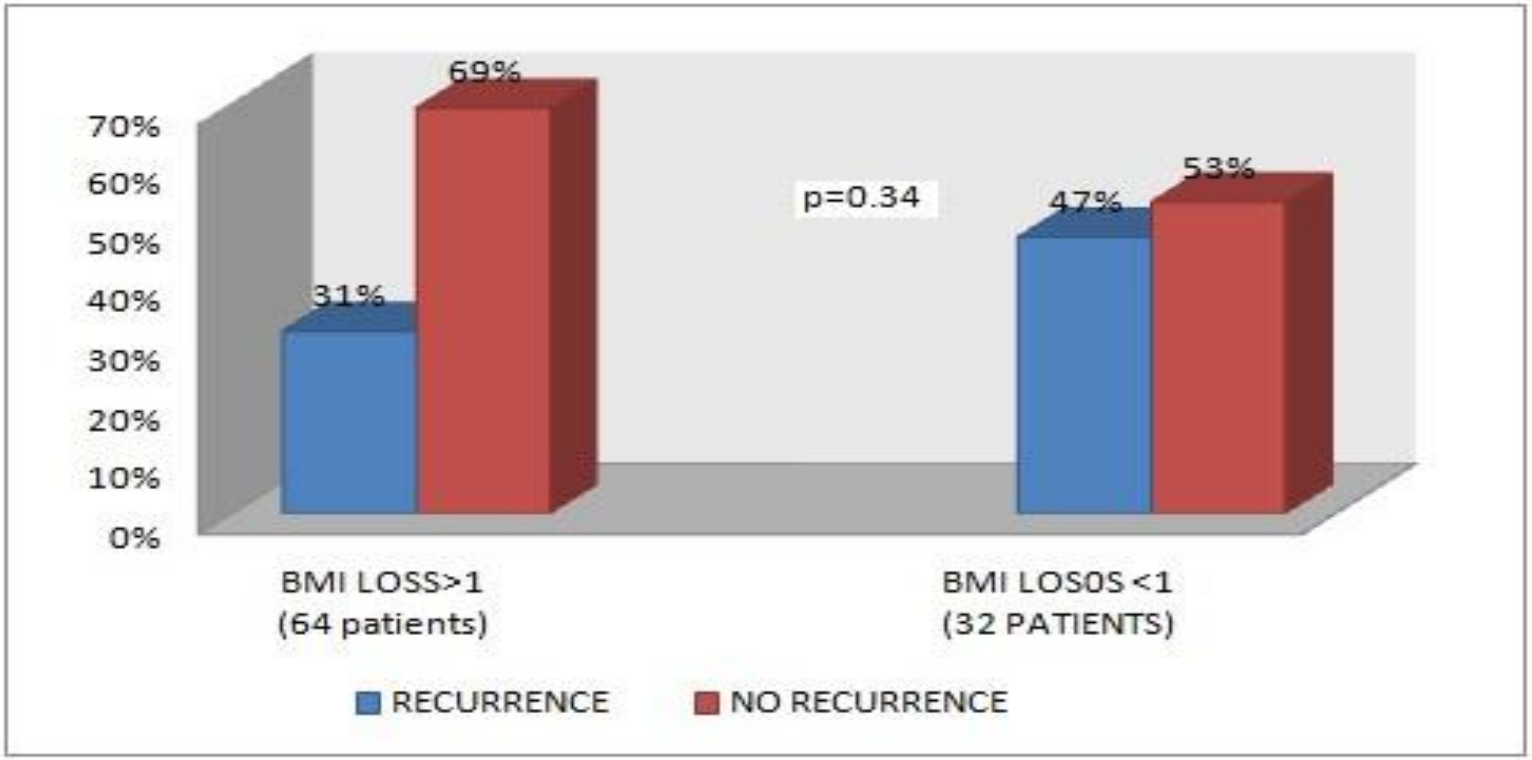
Correlation between BC recurrence and 3 categories of BMI at baseline (lean weight: BMI <25; overweight: BMI 25-30; obese: BMI >25



Weight at diagnosis was not associated with recurrences (p 0.17)

Results (II)

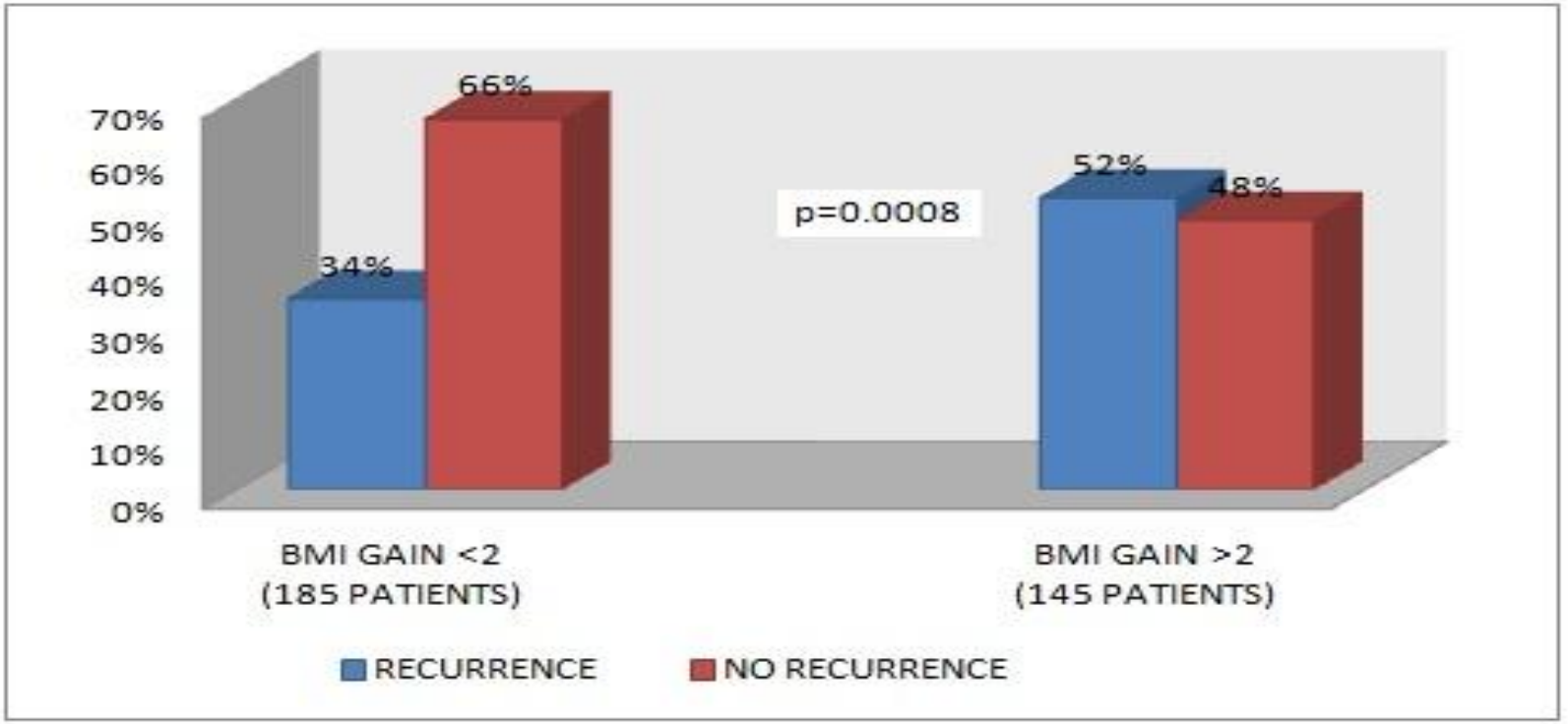
Correlation between BC recurrence and weight loss



Neither moderate (<1kg/m^2) nor larger (>1kg/m^2) weight loss was associated with a reduced risk of recurrence.

Results (III)

Correlation between BC recurrence and weight gain



Moderate (<2 kg/m^2) or larger (>2 kg/m^2) BMI gain was rather significantly related to recurrences (p 0.0008).

Conclusions

- Our findings show that EBC patients gain weight after treatment.
- We did not observe an association between weight at diagnosis and breast cancer recurrence.
- Otherwise we did not observe a significant correlation between weigth loss and recurrence.
- Rather moderate ($<2\ kg/m^2$) or large ($>2\ kg/m^2$) weight gain post-diagnosis is significantly associated with an increased risk of breast cancer recurrence.
- Medical oncologist should monitor weight carefully in their breast cancer patients.
- Intervention strategies have to be offered to those women with early stage breast cancer experiencing weight gain.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