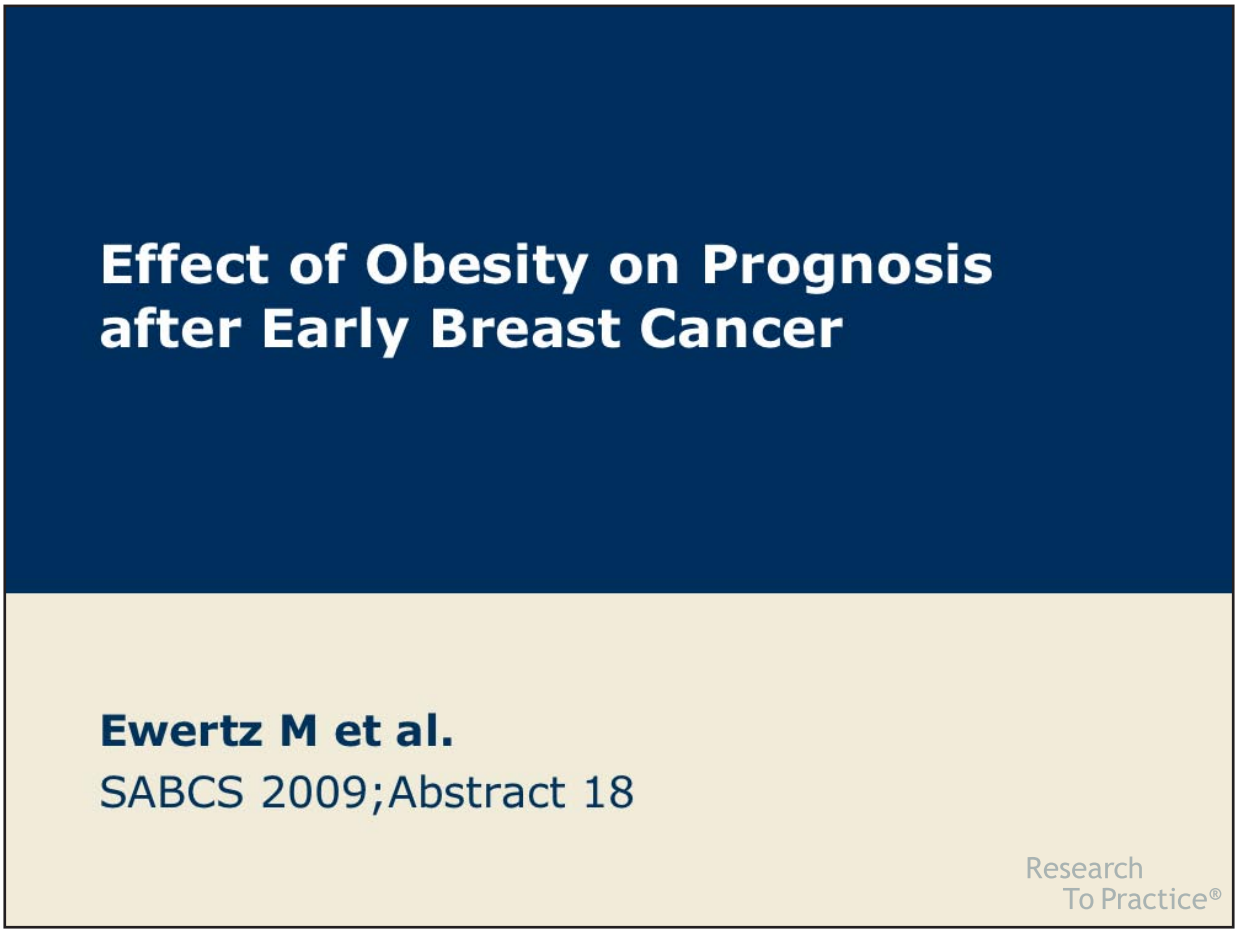
Effect of Obesity on Prognosis After Early Breast Cancer

Presentation discussed in this issue:

Ewertz M et al. **Effect of obesity on prognosis after early breast cancer.** San Antonio Breast Cancer Symposium 2009;**Abstract 18**.

Slides from a presentation at SABCS 2009



Introduction

- Obesity, measured by body mass index (BMI, kg/m^2), is associated with an increase in the risk of death from breast cancer (*NEJM* 2003;348:1625)
- **Current study objectives:**
  - Examine the influence of obesity on the risk of recurrence or death from breast cancer (BC) or other cause in relation to adjuvant treatment.
  - Determine whether obesity is an independent prognostic factor for recurrence or death from BC.
  - Investigate whether obesity is associated with poorer response to adjuvant treatment.

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Methods

- Study group identified from the Danish Breast Cancer Cooperative Group (DBCG) database:
  - Study period: 1977 - 2006
  - Patients with complete data on 10-year follow-up: 53,816
  - Patients with data on height and weight: 18,967
- DBCG treatment protocols:
  - CMF, FEC or taxanes
  - Tamoxifen or aromatase inhibitors
  - Trastuzumab
- Statistical methods:
  - χ^2 for association between BMI (<25 versus ≥ 25; <30 versus ≥ 30) and other prognostic factors
  - Univariate/multivariate analysis for cause-specific survival and invasive disease-free survival

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Association of BMI with Other Prognostic Factors and Risk of Recurrence or Death

- Patients with BMI ≥ 25 were associated with the following prognostic factors compared to patients in the reference group with BMI < 25 (p <0.0001 for all):
  - older age
  - postmenopausal status
  - larger tumors
  - more positive lymph nodes
  - invasion into deep fascia
  - Grade III tumors
- Univariate analyses showed:
  - Risk of locoregional recurrence was not related to BMI
  - ↑ risk of distant recurrence is associated with ↑ BMI after 3 years of follow-up
  - ↑ risk of death from breast cancer is associated with high BMI throughout 30 years of follow-up

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Effect of Obesity on Risk of Distant Metastases

		Adjusted HR*	95% CI	*p*-value	Test for heterogeneity
BMI 25-30	0-5 yrs	1.01	0.92-1.10	0.85	0.002
	>5 yrs	1.42	1.17-1.73	0.0005	
BMI 30+	0-5 yrs	1.08	0.96-1.21	0.21	0.046
	>5 yrs	1.46	1.11-1.92	0.007	

**Hazard ratio (HR) adjusted for age, tumor size, fascial invasion, nodal status, histology, grade and ER status; Reference group BMI < 25.*

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Effect of Obesity on Risk of Death from Breast Cancer

		Adjusted HR*	95% CI	*p*-value	Test for heterogeneity
BMI 25-30	0-10 yrs	1.02	0.96-1.09	0.50	0.01
	>10 yrs	1.26	1.09-1.46	0.002	
BMI 30+	0-10 yrs	1.11	1.02-1.21	0.02	0.06
	>10 yrs	1.38	1.11-1.71	0.003	

**Adjusted for age, tumor size, fascial invasion, nodal status, histology, grade and ER status; Reference group BMI < 25.*

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Conclusions

- Patients with BMI ≥ 25 were older and diagnosed at a more advanced stage of disease compared to patients with a BMI < 25.
- Obesity is an independent prognostic factor for distant metastasis and death from BC.
  - In patients with BC, BMI > 25 is associated with:
    - 42-46% ↑ risk of distant metastases within 10 years
    - 26-38% ↑ risk of death from breast cancer ≥10 years after diagnosis
- Efficacy of adjuvant therapy appears to be less in patients with BMI > 30 (data not shown).
  - Overall survival adjusted HR (≥10 years after diagnosis)
    - HR chemotherapy: 1.77
    - HR endocrine therapy: 1.57

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