

## Breast Pathology 2017: Diabetes, obesity and breast cancer prognosis in Mediterranean women- Maurizio Montella- National Cancer Institute G Pascale Foundation

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Obesity and diabetes reached the most epidemic proportion and may be it will be associated with breast cancer survival outcomes. We therefore studied regular association of obesity, diabetes and their combination with disease free survival and overall survival. Our study will be included pre and post-women with non-metastatic Breast Cancer is treated with mastectomy or breast-conserving surgery in two oncologic hospitals in Naples (Italy). Obesity was generally assessed through a body mass index  $>30\text{kg/m}^2$ , while diabetes was categorized according to the American diabetes association guidelines. Patients and tumor characteristics including staging and molecular subtyping were evaluated using the Kruskal-Wallis H test for age, the Mantel-Haenszel linear-by-linear association chi-square test for trends for the ordered categorical variables and chisquare test for other categorical variables. Patients effects were analysed in the terms of both disease free survivals with local, contralateral and distant disease recurrence and secondary primary tumors and death from any cause defined as overall survival OS with death from any cause event. There was total of 137 recurrences after five years, mostly in the DM and Ob group it will be (28%).

There were no important differences in DFS or OS between obese diabetes only compared to those without obesity or without diabetes. The fully adjusted multivariate Cox regression analyses showed a direct association of DM and Ob with DFS (HR=2.54, 95% CI 1.30-4.98) and with OS (HR=2.30; 95% CI 1.02-5.17), suggesting that the co-presence of diabetes and obesity had an independent and strong prognostic value. As per the latest World Health Organization report estimated breast cancer incidence in westernized countries at 89.7 per 100,000 women, which makes it the most common cancer among women. The purpose of the present prospective trial was to investigate the association between diabetes, obesity and to outcome about the patients who are affected by early BC, in a Mediterranean population. The WHO estimated that, in 2014, 422 million adults were affected by diabetes, with a prevalence of 8.5%, and more than half a billion people were affected by obesity Diabetes and obesity affect both the BC phenotype and the prognosis of patients Metabolic health is currently a major issue in daily oncological practice because weight gain, and elevated blood levels of glucose insulin triglycerides and cholesterol are common side effects of adjuvant treatment. Overweight is inversely related to premenopausal breast cancer, but there is definite evidence for that, as compared with normal weight of women, the relative risk but not with premenopausal breast cancer. Thus,

overweight and obesity are strongly related to postmenopausal breast cancer, diabetes is only moderately related to it. The extent of the association, and the likely residual confounding by overweight, inference on causality for the diabetes–breast cancer relation remains for Open discussion.

Here we, mostly demonstrate that obesity and diabetes are independent prognostic factors for DFS in patients affected by early breast cancer treated with standard neo- or adjuvant therapy. The risk of cancer recurrence was approximately three times higher in patients with diabetes and obesity than in patients who were neither obese nor diabetic. It is unclear whether diabetes increases breast cancer–specific mortality. Compared with their non-diabetic counterparts, patients with breast cancer and pre-existing diabetes have been described to present with more advanced breast cancer at diagnosis and to receive less aggressive treatments the diabetic patients included in our study had larger tumors than did their not diabetic counterparts.

However, treatment choices in our patient population were not affected by the pre-existing diagnosis of diabetes and the presence of this disease alone did not change the outcome of patients. Although, neither diabetes nor obesity affected the outcome of our patients, DFS was significantly worse in patients with these two conditions than in patients without them. This result was unrelated to tumour stage, tumour subtype, age and type of neo- or adjuvant therapy received. Our data suggest that diabetes and obesity alone does not necessarily predict metabolic health. Diabetes and obesity than in patients who were neither obese nor diabetic. Obese and diabetic patients were also more likely to have larger tumors and to be postmenopausal.

However, the distributions of tumour grade, neo- or adjuvant therapies and tumour molecular subtypes. Obesity and diabetes are both associated with peripheral tissue insulin resistance, which results in an increase of insulin levels Insulin, and the insulin like growth factor increase estrogen levels by reducing the concentration of the sex hormone binding protein and by enhancing the expression of the aromatase in adipose tissue.

### **Result:**

At diagnosis, obese and diabetic patients were more likely to be older ( $p < 0.0001$ ) and post-menopausal ( $p < 0.0001$ ) and to have a tumor larger than 2 cm ( $p < 0.0001$ ) than patients in groups 1–3. At univariate analyses, obese and diabetic patients

had a worse disease-free survival ( $p = 0.01$ ) and overall survival ( $p = 0.001$ ) than did patients without obesity and diabetes. At multivariate analyses, the co-presence of obesity and diabetes was an independent prognostic factor for disease-free survival (hazard ratio=2.62, 95% CI 1.23–5.60) but not for overall survival.

**Conclusion:** At diagnosis, obesity Patients and diabetes were older, had a larger tumors and a worse outcome compared to patients without the obesity or diabetes. These data mostly suggest in the metabolic health influences the prognosis of patients affected by early breast cancer.