Research Protocol

BMI and Association with Histopathological Characteristics of the Tumor in Postmenopausal Women

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The purpose of our study is to analyze the association between the increased bodyweight, by using the body mass index (BMI), and the histopathology of breast cancer (size of tumor, grade, hormone receptors, her2, lymph nodes) in postmenopausal women. In this retrospective study, 99 patients were examined, who were operated in our clinic who suffer from breast cancer from 12/2012 to 12/2014. ER and PR tumors were categorized as positive if 1% of the nuclei was stained. HER2 tumors were categorized as positive if ›10% of the nuclei was stained. The patients were categorized as being normal weight with BMI‹24, 9Kg/m^2, overweight with BMI 25-29,9 Kg/m^2, or obese with BMI›30Kg/m^2. The average of BMI was 28, 28kg/m^2 (range 18, 64-44, 76). In the category of normal weight patients (BMI = 24,9Kg/m^2), we diagnosed 10 patients of stage I (25%), 18 patients of stage II (45%), and 12 of stage III (30%). As far as tumor size concerns, 11 patients were in T_1 (27,5%), 9 were in T_2 (22,5%) and 5 in T_3 (12,5%) stage. Regarding the lymph nodes, 20 patients were diagnosed in N_0 (50%), 14 in N_1 (35%), 5 in N_2 (12,5%) and 2 in N_3 (5%). Referring to the hormone receptors and the expression of Her2, the most common combination was ER+PR+Her2- in 26 patients (65%), followed by ER+PR+Her2+ in 4 (10%), ER-PR-Her2+ in 3(7,5%) and ER-PR-Her2- in 2 (5%). In the category of overweight patients (BMI 25-29,9kg/m2) we diagnosed 5 of stage I (18,5%), 10 (37%) of stage II, and 12 (44,4%) of stage III. Concerning the tumor size, we had 13

patients in T_1 stage (48, 14%), 9 in T_2 (33,33%) and 5 in T_3 (18,5%). As far as lymph nodes concerns, 13 patients were diagnosed in N_0 (48,14%), 5 in N_1 (18,5%), 3 in N_2 (11,11%) and 5 in N_3 (18,5%). Referring to the hormone receptors and the expression of Her2 , the most common combination was ER+PR+Her2- in 15 patients (55,55%), ER+PR+Her2+ in 4 (14,8%), ER-PR-Her2+ in 3 (11,11%) and ER-PR-Her2- in 1 (3,7%).In the category of obese patients (BMI›30Kg/m2) the grade was: 9 patients in stage I (34,6%), 9 in stage II (34,6%) and 8 in stage III (30,7%). Referring to the tumor size, we had 9 patients in T_1 (34,6%), 15 in T_2 (57,7%) and 3 in T_3 (11,11%). Respecting the lymph nodes 15 patients were in N_0 (57,7%).

In our study, we demonstrate that in postmenopausal women with BMI›25 we diagnosed larger tumors, more positive lymph nodes and higher grade of breast cancer, which indicates more aggressive growth and characteristics of the cancer cells. These tumors have high expression of ER+PR+ and low expression of Her2 +.

Acknowledgment

None.

Conflict of Interest

No conflict of interest.