product of collagen I degradation, have been observed in patients with BMs. The aim of this preliminary study was to evaluate the usefulness of TRACP5b, ICTP and bone alkaline phosphatase (BAP) in patients with BMs from BC.

Patients and Methods: A group of 11 women (median age 68 years, range 56−72 years) with BC and radiologically confirmed isolated BMs (cases), and a group of 14 age- and stage-matched women at the time of surgery without BMs (controls) were retrospectively reviewed. All patients serial measurement of TRACP5b, ICTP, and BAP. The cut-off values considered were 3.6 U/L, 4.2 U/mL, and 68 U/mL for TRACP5b, ICTP, and BAP, respectively. The odds ratios (OR) calculation with the 95% confidence interval (95% CI), the Fisher exact probability test, and the t-Student test were used to compare variables.

Results: The mean levels of TRACP5b, ICTP, and BAP (cases *vs.* controls) were 6.2±2.8 *vs.* 3.2±1.2 (t= 3.62, p = 0.0014) U/L, 8.3±6.4 *vs.* 4.2±1.6 (t = 2.32, p = 0.029) U/mL, and 151.3±98.6 *vs.* 72.5±26.4 (t = 2.87, p = 0.0085) U/mL, respectively. The corresponding OR were 7.20 (95% CI 1.06–48.64, p = 0.043), 6.41 (95% CI 1.09–37.73, p = 0.041), and 1.60 (95% CI 0.32–7.84, p = 0.42), respectively, while the OR for TRACP5b and ICTP together was 9.77 (95% CI 1.55–61.64, p = 0.014).

Conclusion: Our preliminary study shows that in patients with BC the elevation of both TRACP5b and ICTP correspond to a 9.8-fold higher risk of having BMs.

References

Lumachi F *et al.* Bone 2011; 48:S25.
Korpela J *et al*. Anticancer Res 2006; 26:3127.

234 Poster

Metastatic Breast Cancer − a Retrospective Analysis of Abdominal/pelvic Metastasis of Breast Origin

T. Addati[1], S. Petroni[1], M.A. Caponio[1], E. Mattioli[1], V. Rubini[1], R. Digirolamo[1], G. Simone[1], F. Giotta[2]. *[1]Oncology Institute "Giovanni Paolo II", Pathological Anatomy Unit, Bari, Italy; [2]Oncology Institute "Giovanni Paolo II", Clinical Experimental Oncology Unit, Bari, Italy*

Background: Breast cancer is the most common neoplasm in women, accounting for approximately 32% of women's tumors, with a life time risk of 1 in 10. Metastatic breast cancer is a heterogeneous disease with distinctive histological and biological features, clinical behaviours and therapy response.

The aim of study was to analyze the combined Estrogens (ER) and Progesterone (PgR) phenotypes and the Proliferation Index (Ki-67) in primary and in corresponding abdominal/pelvic metastases to compare biological features of the tumors.

Material and Methods: 21 patients with primary invasive breast cancer and corresponding abdominal or pelvic recurrences (1999–2009) entered to the study. Metastasis were localized: 16 in ovary, 1 in cervix, 1 in endometrium and 3 in omentum. Hormonal receptors were tested on 18/21 primary breast cancer and on 20/21 metastatic samples. Ki-67 was assesed on 13/21 primary breast cancer and on 19/21 metastasis. HercepTest was performed on 18/21 metastatic samples. ER, PgR and KI-67 status was classified according European guidelines. HER−2 was evaluated according to FDA-approved scoring system.

Results. Twelve out of 18 (66.6.1%) primary evaluable cases were ER+/PgR+ and 6 (33.4%) ER−/PgR-; whereas only 3/20 of metastatic sites resulted ER+/PgR+ (15%), 5 (25%) ER−/PgR+, 3 (10%) ER+/PgR- and 9 (45%) ER−/PgR-. 4/13 (30.7%) primary breast cancer and 7/19 (36.8%) metastatic cases had an high Ki67; moreover, 14 metastases were HER−2/neu negative whereas in 4 cases HER−2 was overexpressed.

Six patients (mean FU: 64 months; 12–120 months) had follow up data: after the first event, 5 were treated with Chemotherapy and Tamoxifene, whereas 1 was treated with Radiotherapy and Tam. Receptor expression was higher in primary than in secondary lesions and receptor-negative primary tumours showed receptor-negative recurrences.

Conclusions. Our data revelled that loss of ER and PgR expression in abdomen and pelvic recurrent breast cancer have high incidence. Moreover, breast cancer metastases, that arise from ER and PR positive primaries, fail to respond to endocrine therapy because of the development of ER negative lesions, indeed 30% of metastatic sites evidenced a triple negative (ER, PgR, HER−2/neu) status.

235 Poster

Characteristics of Molecular Breast Cancer Subtypes Among Bulgarian Women

M. Tuashanova[1], N. Dimitrova[2], I. Gavrilov[3]. *[1]National Oncological Hospital, Chemotherapy, Sofia, Bulgaria; [2]Bulgarian National Cancer Registry, Executive, Sofia, Bulgaria; [3]National Oncological Hospital, Thoracic Surgery, Sofia, Bulgaria*

Breast cancer is a heterogeneous disease from a clinical as well as biological point of view. Four molecular subtypes have been identified and have to be considered when decision for treatment is made.

The purpose was to compare the molecular subtypes by clinicopathological characteristics and prognostic value for female breast cancer in Bulgaria.

Data from the Bulgarian National Cancer Registry (BNCR) about female breast cancers, diagnosed in 2005–2009 were analyzed. All patients were followed-up until 01.01.2011. Four molecular subtypes were defined on the base of immunohistochemical status of estrogen (ER), progesterone (PR) receptors and HER2, recorded in BNCR database: Luminal A (ER+, PR+/−, HER2−); Luminal B (ER+, PR+/−, HER2+); HER2 (ER−, PR−, HER2+); TNBC (ER−, PR−, HER2−). Clinicopathological characteristics of the molecular subtypes − age, stage and grade were compared, using Chi-square test, Kaplan-Meier and Cox regression methods.

There were 18450 female breast cancers, registered in BNCR database and 9303 (51.4%) of them were classified into molecular subtypes. The proportions of Luminal A, Luminal B, HER2 and TNBC were 59.0%, 20.1%, 6.8% and 14.1%; five years survival was 78.7%, 75.1%, 61.7% and 67.2% respectively. The molecular subtypes differ by age, stage and grade ($p < 0.0001$). The risk of death was lower ($p < 0.0001$) for Luminal A (with 48%) and Luminal B (with 42%), compared with TNBC, after adjusting for age, stage and grade. HER2 and TNBC showed similar prognosis ($p = 0.427$).

The comparison of molecular subtypes showed clear differences in clinicopathological characteristics. The prognosis was better for Luminal A and Luminal B types. The lack of difference in prognosis between HER2 and TNBC types can be explained with relatively recent introduction, in 2008, of adjuvant treatment with trastuzumab for Bulgarian women.

236 Poster

Bone Management by Bisphosphonate in Metastatic Breast Cancer Patients

J. Watanabe[1], Y. Kubo[1], A. Ogiya[2], Y. Tadokoro[2], K. Tanaka[2], N. Nishikawa[2], M. Sato[2], K. Takahashi[2]. *[1]Shizuoka Cancer Center, Breast Oncology, Shizuoka-pref., Japan; [2]Shizuoka Cancer Center, Breast Surgery, Shizuoka-pref., Japan*

Background: Bone is one of a common involved site of metastasis in advanced breast cancer patients. Bisphosphonate (BP), especially zoledronate (ZOL) is regarded as not only an essential key tool to reduce skeletal associated events but also improve patients' survival.

We reviewed metastatic breast cancer (MBC) cases with the aim of evaluating improvement of patients' survivals and quality of life (QoL) by BP use.

Patients and Methods: From October 2002 to September 2011, 459 patients were diagnosed as MBC. Most of patients (345/459, 75.2%) were recurrent disease, and the rest (114, 24.8%) were primary advanced disease. Receptor statuses were as follows; estrogen-receptor positive (ER+) 63.2%, HER2+ 26.6%, triple-negative 13.3%. Patients who had bone metastasis (BM) at the time of diagnosis were 37.7% of MBC patients. BP administration was considered in patient having or newly developed BM to manage her bone lesion. Concomitant chemo-, endocrine or radiotherapy was performed in practical manners. After approval of ZOL in Japan (mid 2006), all of the patients who had been already given pamdronate or incadronate, were changed to receive ZOL.

Results: Total 296 patients, 64.5% of MBC patients, including patients who were BM-free at the initial diagnosis of MBC, were diagnosed as having BM. Estrogen receptor was positive in 77.4% of patients. About one-third of the patients complained bone pain at the time of BM diagnosis. Median survival time (MST) for all MBC patients was 1376 days, and there was no difference of MST between patients BM+ or BM-. Among BM+ patients, there was no significant difference of MST between having and not having bone pain at the time of BM diagnosis. BP was administered in 218 (73.6%) of BM+ patients and improved their MST from 1315 to 1461 days compared with BP non-users including BM- patients, although, there was no statistical significance ($P = 0.0721$).

Conclusions: As De La Haba *et al* previously displayed (2010 ASCO abstr. 630) appropriate ZOL use improves BM+ patients' survival. In the same manner, our retrospective observation showed a trend of survival benefit from BP. These facts confirm bone management by ZOL is