

VIRCHOWS ARCHIV

European Journal of Pathology

Volume 469 · Supplement 1 · September 2016



XXXI International Congress of the
International Academy of Pathology

and

28th Congress of the
European Society of Pathology

Predictive Pathology, Guiding and Monitoring Therapy

25 - 29 September 2016
Congress-Centrum Ost-Königsmesse, Cologne, Germany

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Abstracts

Jointly organized by
• German Division of the IAP
• European Society of Pathology

 Springer

428 · 469(S1) 51-5346 (2016)

ISSN: 0945-6317 (print)

ISSN: 1432-2307 (electronic)

 European
Society of
Pathology

Objective: HER2 analysis should be performed from all primary invasive breast carcinomas. Strong 3+ positive cases with immunohistochemistry (IHC) receive anti-HER2 therapy like trastuzumab. 2+ positive cases show less intense and fragmented staining and are retested by in situ hybridization (ISH). 0 or 1+ IHC are considered negative, and ISH is not obligatory.

Method: We analysed HER2 status from 750 consecutive breast cancer patients operated between 1.10.2014 and 31.5.2015 in Helsinki University Central Hospital Breast Unit. Both IHC and silver-enhanced in situ hybridization (SISH) analysis were performed.

Results: 400 tumours were 0 or 1+ in HER2 IHC. 398 of these were also negative in SISH, but two were positive. 279 tumours showed 2+ positivity in IHC. 242 out of these were negative in SISH and 37 were positive in SISH. 71 tumours were 3+ in IHC and 68 were also positive in SISH. Three cases were not amplified in SISH.

Conclusion: Our study showed that a small number of 0 or 1+ IHC positive breast tumours have also HER2 gene amplification. Similar numbers have been previously described in literature.

PS-01-061

Tumour-suppressive effects of oregano in N-methyl-N-nitrosourea-induced mammary carcinogenesis in female Sprague-Dawley rats

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Objective: Nowadays the anti-tumour effects of some natural plant foods are extensively studied. One of them, oregano is rich in phenolic compounds and monoterpenoids with high antioxidant capacity. The effects of lyophilized oregano were evaluated in N-methyl-N-nitrosourea-induced mammary carcinogenesis in female Sprague-Dawley rats.

Method: Animals were randomly divided into three experimental groups in = 25 per group): 1/ control group without chemoprevention; 2/ group with chemoprevention with oregano at a concentration of 0.3 %; and 3/ at concentration of 3 %. The experiment was terminated after 14 weeks of carcinogen exposure. Various macroscopic (tumour-bearing animals, tumour frequency, incidence and latency, tumour volume), histological (tumour type, grade) and immunohistochemical parameters (caspase-3, Bax, Bcl-2, Ki67, VEGF, VEGFR and some cancers stem cell markers) were evaluated.

Results: In both treated groups histology was similar and demonstrated decrease in the ratio of high-/low-grade carcinomas compared to control group. In group with 0,3 % of oregano there was reduced tumour frequency by 55,5 %, tumour incidence by 44 %, and tumour volume by 44.5 % compared to control group. Immunohistochemistry confirmed in both treated groups decreased expression of VEGFR-2, CD24 and EpCAM and increased positivity of caspase-3. Moreover, the lower dose group had decreased proliferative activity and the group with 3 % of oregano had increased latency by 12.5 days and decreased expression of Bcl-2.

Conclusion: Results our study show a distinct tumour-suppressive effects of oregano in the breast cancer model characterized by antineoplastic impact on tumour stem cells, as well as pro-apoptotic, antiangiogenic and antiproliferative activity in breast cancer.

PS-01-063

The effect of heavy metals accumulation on morphological and immunohistochemical features of breast cancer

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Objective: The chemical composition determination of neoplastic breast tissue, study of prognostic-important receptors expression in the breast cancer cells, establishing linkages between all the derived indicators.

Method: We used the following methods: studying of the chemical composition of breast cancer tissue (94 cases) by atomic absorption

spectrophotometry and energy-dispersion spectrometer; immunohistochemical study of ER, PR, HER2/neu, p53, Ki-67, E-cadherin, MMP1, VEGF, OPN, hsp90 and MGMT receptors; statistical analysis of the results.

Results: The total number of heavy metals (zinc, iron, copper, chromium, nickel and lead) in breast cancer tissue ranged from 51.21 to 84.86 mg/kg (average 72.44 mg/kg). There is an interrelation between the accumulation of the above elements with the degree of cancer malignancy. Their number was higher in the parenchymal component of tumour tissue. The growth of heavy metals in neoplastic tissue is accompanied with the increase of HER2/neu, p53, Ki-67, MGMT, MMP1, VEGF, OPN, hsp90 expression and decrease of ER, PR and E-cadherin expression ($p < 0.05$).

Conclusion: The heavy metals stimulate tumour anaplasia, inhibit the expression of prognostically-favorable receptors and activate negative intracellular proteins, which negatively affects the morphogenesis of neoplastic process in the breast and reduces its sensitivity to treatment.

PS-01-065

Increased CD4+ and CD8+ lymphocytic infiltration in patients with triple negative breast cancer suggests susceptibility to immune therapy

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Objective: To investigate tumour-associated immune cell densities in TNBC patients.

Method: Samples from 104 breast cancer patients were investigated by IHC using antibodies against ER, PgR and Her-2, CD3, CD20, CD4 and CD8. Immune cell densities were quantified as cell/mm² using the CAP guidelines. Correlation of immune cell densities with tumour sub-types was undertaken using paired t-test, ANOVA and Chi square.

Results: A total of 27 (25 %) patients had TNBC and 77 (74 %) were non-TNBC patients. Patients with TNBC showed significantly increased infiltration of lymphocytes (T and B cells) compared to the patients with non-TNBC, while myelocytic infiltration was not significantly different. Within the TNBC group, infiltration of T-lymphocytes was significantly higher compared to B-lymphocytes. However, CD4 and CD8 infiltration was not significantly different within the TNBC group.

Conclusion: Patients with TNBC show increased lymphocytic (both T and B lymphocytes) infiltration compared to the patients with non-TNBC. Moreover, TNBC are heavily infiltrated with T lymphocytes compared to the B lymphocytes. This suggests higher immunogenicity of TNBCs and may indicate a higher responsiveness of these cancers to immunotherapy.

PS-01-066

Breast adenoid cystic carcinoma: A case report

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Objective: Report a case of an adenoid cystic carcinoma (ACC) of the breast. Present a brief review of its different characteristics in light of existing literature.

Method: A 50-year-old postmenopausal woman, with no significant medical history, presented with a palpable right breast lump. The physical examination found a 1 cm sized, irregular shaped, and firm lump at her left breast. Mammography and breast ultrasonography showed an ill-defined 8 x 7mm sized lump with irregular borders at the upper quadrants of right breast. A core biopsy was performed and identified an ACC. The patient underwent lumpectomy with axillary lymph node dissection.

Results: The pathological examination showed a 6,2 x 3 x 1,5 cm sized, irregular shaped lesion. Microscopic examination revealed small basaloid