J Vaccines Vaccin 2016, 7:8(Suppl)
http://dx.doi.org/10.4172/2157-7560.C1.052

Immunohistochemical expression of cyclin D1 in human breast carcinoma

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Background: Breast cancer remains a major health problem in women. The molecular mechanisms of tumor growth and progression are complicated but likely involve the interaction of tumor suppressor genes (oncogenes, cell cycle regulatory proteins and other factors). Recently some studies showed that cyclin D1 is a cell cycle regulatory gene emerging as a potentially significant oncogene in invasive breast cancers.

Objective: To evaluate immunohistochemical expression of cyclin D1 in women with breast cancer in our population and correlate its expression with different variables such as age, type of tumor and grade.

Materials & Methods: We retrospectively analyzed data from 76 formalin fixed of paraffin embedded tissues diagnosed with breast cancer which were collected from teaching laboratory unit in Baghdad medical city, Iraq, during the period from 2009 till 2013 and compared with positive control. These samples were investigated immunohistochemically, nuclear and cytoplasmic staining of tumor cells was accepted as positive.

Results: The results showed that age distribution ranging from (28-67 years) with a mean age of 47.63 years. Regarding tumor types 68 (89.47%) cases were with invasive ductal carcinoma, 6 (7.89%) cases were with invasive lobular carcinoma and 2 (2.63%) cases were recurrent carcinoma. Histologically the tumor grade ranges from well differentiated (grade 1) in 10 (13.15%) cases, moderately differentiated (grade 11) in 52 (68.42%) cases and poorly differentiated (grade 111) in 14(18.42%) cases. Cyclin D1 expression was positive in 30 (39.47%) cases, while 46 (60%) cases negative. On the other hand most positive cases occurred within age group (41-55 years), invasive ductal carcinoma 26 (86.66%) and moderately differentiated 18 (60%) cases. Significant differences noticed between IHC expressions of this marker with age, type of tumor and grade.

Conclusion: Cyclin D1 is an important regulator of cell cycle progression and overexpression of cyclin D1 has been linked to the development and progression of cancer, cyclin D1 expression was seen more in invasive ductal carcinoma also is considered a novel and good marker of invasiveness in breast cancer tissue and may be used for treatment.

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Influenza vaccine efficacy and T-helper cell differentiation change with aging

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The ability to generate a robust immune response to influenza infection declines with age. As a preventative measure, the common influenza vaccine is administered yearly. But, due to age-related changes in immune function, this current vaccine strategy fails to protect thousands of elderly people each season. Exactly how these age-related changes contribute to poor influenza vaccination efficacy however remain to be elucidated. In this study, we show that while vaccination with influenza nucleoprotein (NP), a candidate for a universal influenza vaccine, reduces lung inflammation and susceptibility to secondary bacterial infection in young mice, it does not have the same effect in aged mice. NP vaccination of aged mice does induce NP-specific antibodies that protect from death due to influenza and NP-specific CD4 T-cells are more likely to differentiate towards a T follicular helper (Tfh) phenotype in aged mice. This is in contrast to young mice, where CD4 T-cells are driven more towards a T-helper type 1 (Th1) phenotype, which may be more beneficial for viral clearance. This age-associated change in T-helper cell differentiation patterns could account for some or all of the age related differences in vaccine efficacy. Our results highlight the importance of examining parameters other than antibody responses when testing influenza vaccines in preclinical models of aging.

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