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Prolactin receptor expression is an independent favorable prognostic marker in human breast cancer

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Prolactin (PRL) hormone plays an important role in the development of the mammary gland and terminal differentiation of the mammary epithelial cells. While initial studies suggested that PRL may contribute to the development of breast cancer through PRL/prolactin receptor (PRLR) autocrine function, mounting evidence indicate a different role for PRL, highlighting this hormone as a regulator of epithelial plasticity and as a potential tumor suppressor. In order to gain further insights into the role of PRL in human breast carcinogenesis, immunohistochemistry analyses of PRLR protein expression levels using tissue microarray of 102 cases were done in comparison to various clinical/pathological parameters and molecular subtypes. In addition, gene expression level of PRLR was also evaluated in relation to intrinsic molecular subtypes, tumor grade and patient outcome using GOBO database for 1881 breast cancer patients. Interestingly, PRLR expression was found to be significantly downregulated in invasive breast cancer (21.4%) in comparison to normal/benign (80%) and *in situ* carcinoma (60%) (P=0.003498). Moreover, PRLR expression was associated with lymph node (LN) negativity and low grade well-differentiated tumors. PRLR expression was strongest in luminal A subtype, and was virtually undetectable in the worse prognosis triple negative breast cancer subtype (P=0.00001). Furthermore PRLR expression was independent of ER, PR, HER2 and P53 status. Finally, PRLR expression was significantly (P<0.01) associated with prolonged distant metastasis free survival (DMFS) in breast cancer patients. In conclusion, our results highlight PRLR as an independent predictor of favorable prognosis in human breast cancer.

Biography

Ibrahim Y Hachim has completed his MBChB and MSc (Histopathology) degrees from Al-Nahrain University, Faculty of Medicine, Iraq. He works as a Senior Lectures and Secretary of the Research and Ethical Committee in RAK Medical and Health Sciences University, UAE. He is a PhD candidate in the Division of Experimental Medicine, McGill University, Canada. He published group of papers in highly reputed journals.

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