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3rd International Conference and Exhibition on
Clinical & Cellular Immunology
September 29-October 01, 2014   DoubleTree by Hilton Baltimore-BWI Airport, USA

Local inflammation in breast tissue and mammographic density among premenopausal and postmenopausal women

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Chronic inflammation plays a role in breast carcinogenesis. Local inflammation would be manifested by increased expression of pro-inflammatory markers [interleukin-6 (IL-6) or tumor necrosis factor-α (TNF-α)] to anti-inflammatory marker [transforming growth factor-β (TGF-β)] in breast tissue. It was assessed if local inflammatory state in breast tissue would affect the mammographic density, a breast cancer risk factor, among 82 premenopausal and 82 postmenopausal breast cancer patients. For each patient, six cores of normal breast tissue, located at >1.0 cm from the tumor, were extracted from mastectomy blocks and used to build up tissue microarray (TMA) blocks. TMA cut sections were stained by immunohistochemistry and digitized. The protein expression levels of inflammatory markers were visually estimated (intensity and proportion of positive cells) in normal epithelium present on digitized stained TMA sections. Quick score was obtained by multiplying the intensity by the proportion of positive cells. The pro- to anti-inflammatory marker expression ratios (IL-6/TGF-β and TNF-α/TGF-β) were calculated in three categories based on the quick score; anti-inflammatory (pro-inflammatory marker<anti-inflammatory marker), neutral (pro-inflammatory marker=anti-inflammatory marker) or pro-inflammatory state (pro-inflammatory marker>anti-inflammatory marker). Mammographic density was evaluated by a computer-assisted method. Associations were assessed by multivariate generalized linear models. Pro-inflammatory state of TNF-α/TGF-β among premenopausal women and IL-6/TGF-β among postmenopausal women were associated with higher percent mammographic density compared to the anti-inflammatory or the neutral state (p=0.014 and p=0.005, respectively). Affecting the expression of inflammatory markers in breast tissue may provide attractive targets for future breast cancer preventive strategies.

Biography

Mirette Hanna is about to accomplish her PhD studies in Experimental Medicine at Laval University. She is a Physician (medical degree obtained from Alexandria University) specialized in clinical pathology and blood banking. She has a Master degree in Clinical and Chemical Pathology from Ain Shams University. She has many papers and communications (around 10) in reputed journals and conferences.

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J Clin Cell Immunol 2014
ISSN: 2155-9899, JCCI an open access journal

Immunology Summit-2014
September 29-October 01, 2014

Volume 5, Issue 5

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