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THE IMMUNE PROFILE OF PROSTATE EPITHELIAL CELLS BY IL-6 ACTIVATION MEDIATED BY STAT3 AND AKT SIGNALING PATHWAYS

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Introduction: The major signaling transduction of the pro-inflammatory cytokine IL-6 is through the transcription factor STAT3. However, PI3-K/AKT signaling pathway can also be activated by IL-6 under prostate pathological conditions.

Objectives: The aim of this study is to evaluate the tissues levels of STAT3/IL-6/ AKT axis signaling in prostate tissues from patients with benign prostatic hyperplasia (BPH) and prostate cancer (PC).

Material & Methods: Immunohistochemical analyses for IL-6, Gp130, phospho-STAT3 (Tyr705) and phospho-AKT (Ser473) were carried out in 25 samples of BPH, 16 samples of PC.

Results: Immunoreactivity to IL-6 was consistently observed in stroma compartment of BPH and cytoplasmic epithelial cell in PC samples. Phospho-AKT was mainly expressed in membrane and the cytoplasm in PC compared to BPH. Immunoreactivity for phospho-STAT3 (Tyr705) was found in the stroma and the nucleus of epithelial and tumoral cells. No significant association was determined ($r=0.153$, $P=0.518$) when IL-6 and phospho-AKT (S473) were analyzed within BPH patients; whereas a positive correlation emerged between phospho-STAT3 (Tyr705) in the stroma and phospho-AKT (S473). In PC patients, significant

relationship was documented between IL-6 and phospho-AKT (Ser473) ($r=0.725$, $P=0.02$). In addition, the correlation between phospho-AKT (Ser473) and phospho-STAT3 (Tyr705) as well as detected in the nucleus and the stroma were significant.

Conclusion: This suggests that IL-6/AKT axis could be one of mechanism to activate STAT3 by facilitating inflammatory cell migration and chronic inflammation in BPH and promote cancer progression by promoting cell growth in PC.

Biography

Yosra Bouraoui is experienced in immunology, inflammatory and prostate cancer. Yosra worked on prostate tissue by immunohistochemistry to analyze several signaling pathways in response to inflammatory cytokines such as IL-6, IL-1 and TNF alpha. She is expertized in prostate cell culture to study AKT signaling and NF kappa B mediated by IL1. At this moment she is working on petri net model (In silico model) my experiment results on pro inflammatory cytokines and its network in prostate pathologies. Yosra is currently working on the relation between inflammatory cytokine and immune metabolic in prostate tissue.

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