NF- κB nuclear localization and its prognostic in Moroccan patients with castrate-resistant prostate cancer: an immunohistochemical study

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INTRODUCTION. Several studies suggest that overexpression of p65, the best characterized NF-kB protein, was an independent predictor of poor prognosis in prostate cancer patients and specifically linked with disease relapse. In the present study, we are the first to report NF-κB p65 expression in Moroccan hormono-refractory patients with prostate adenocarcinoma.

METHODS. The study was conducted in CHUM Research Center and Montreal Cancer Institute, Montreal. It included 58 castrate-resistant patients with prostate cancer. The mean age of the patients is 31 years (range, 50–90 years), and the mean preoperative PSA level is 12.4 ng/ml (range, 1.6–87.8 ng/ml). P65 antibody specificity was confirmed by western blot after cell culture, and all cases were analysed in a tissue microarray (TMA) format for NF-kB p65 immunohistochemistry-based protein expression. Correlation between clinico-pathological parameters and the NF-kB p65 status was tested using the Chi2 test.

RESULTS. The NF-κB nuclear intensity had approximately the same distribution as nuclear frequency, consequently, we chose to only report data using the nuclear frequency. Positive nuclear NF-κB p65 staining was observed in 67.24% of the analyzed malignant cores. The scored intensities of nuclear immunoreactivity was 1+ in 13 (22.41%) specimens, 2+ in 28 (48.27%) and 3+ in 11 (18.96%).We observed a significant association between an increase in the nuclear frequency of NF-kB p65 and Gleason score, advanced TNM stages and the presence of distant metastases. No correlation was observed with the other clinico-pathological parameters.

CONCLUSIONS The high expression of NF-κB p65 staining in hormono-refractory patients in our study may indicate a relationship between NF-kB expression and the risk of biochemical relapse. In our study, overexpressed p65 is correlated to high Gleason scores, advanced TNM stages and distant metastases, Therefore, therapy directed against the transcription factor NF-kB is a prime target and may have the potential to improve the prognosis of prostate cancer patients, and attempts to assess the utility of targeting and/or blocking NF-kB signaling in prostate cancers appear to be justified.

Keywords :NF-κB p65, Biochemical relapse, prostate cancer