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INTRODUCTION

NF-kappa B (NF-κB) is an intracellular transcription factor that plays a distinct role in multiple processes related to inflammation and cancer. NF-κB signaling is involved in numerous steps of cancer development, including initiation, proliferation, metastasis and resistance to therapy.

OBJECTIVES

In this study we evaluated the expression of NF-κB in colonic tissues of patients with stages I-III malignant (colorectal cancer, CRC) and benign diseases. We have then compared between pathologies, adjacent tissues, and matched the results with patient's pathological data.

CONCLUSIONS

This study demonstrates that colonic NF-κB levels are higher in tumor tissues than inflammation and other benign pathologies and correlate with positive node statuses of CRC patients. This provides supportive clinical evidence to the involvement of the NF-κB pathway in colon cancer metastatic mechanisms. Further research is needed to evaluate the relevance of NF-κB tumor expression to patient's prognosis in terms of recurrence and long term survival, and clarify its role in inflammation during tumorigenesis, with or without relation to IBD.

METHOD

56 patients with malignant or benign colonic diseases were prospectively recruited. Surgical specimens were selected and sampled by a Pathologist for normal margins, tumor or inflammation area. Tissues were then stained using NF-κB antibodies. Expression of NF-κB was quantified via IMAGEJ program, using the Colour Deconvolution filter, and further converted to O.D.

RESULTS

56 patients were included in this study, 30 had CRC and 26 benign conditions. Tissue NF-κB levels were significantly higher in CRC tumors compared to the adjacent normal margins and to tissues of all benign diseases (Fig.1, $p < 0.05$). In the cancer patients group, tumor NF-κB expression was correlated with positive node statuses (Table 1).

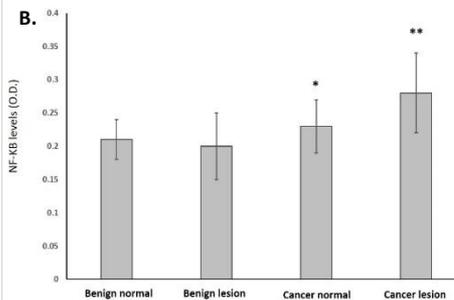
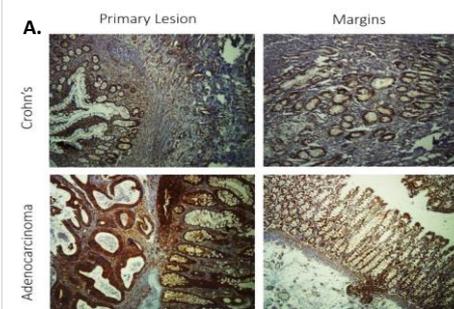


Figure 1. NF-κB levels in tissues. A. tissue staining. B. average levels in bars. * $p < 0.05$ relative to control – benign normal and lesions ** $p < 0.05$ relative to cancer normal.

Table 1. NF-κB levels in colonic tissues of CRC patients with and without positive pathological lymph node status. Mean, Standard deviation and p in Mann-Whitney test values are shown.

	N-		N+	
	Margins	Tumor	Margins	Tumor
Mean	0.220	0.266	0.249	0.298
stdev	0.044	0.043	0.025	0.074
p	0.354	0.147	*0.039	0.078

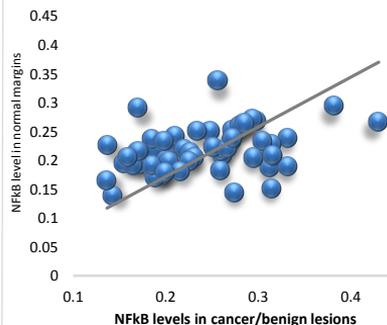


Figure 2. Correlation of NF-κB levels in normal and pathological tissues of all patients. Correlation index = 0.358, $p = 0.007$.