TNF alpha Receptor 1 Promoter Gene Polymorphisms and Susceptibility to Gastric Cancer Related to H. Pylori Infection in Moroccan Population

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Purpose: Helicobacter pylori (H.pylori) is the most common bacterial infections in the world. Nearly half of the world’s population and the majority of people in developing countries are infected with this bacterium [1]. H.pylori infection is the main etiological factor of gastric diseases such as chronic gastritis and gastric cancer (GC)[2]. Single nucleotide polymorphisms (SNPs) that affect immune response genes may influence the host inflammatory reactions, which can lead to GC. To date, no reported studies investigated the relationship between Tumor Necrosis Factor receptor 1 (TNFR1) gene polymorphisms (-383, -580 and -609) and the development of GC. The aim of this study is to assess the involvement of TNFR1 SNPs in the development of chronic gastritis and GC, in Moroccan population.

Experimental Design: Totally, 265 subjects were enrolled in this study, 74 healthy controls and 191 patients infected with H. pylori, divided into two groups. The first and the second groups comprise 94 of GC patients and 97 of chronic gastritis patients, respectively. Genotyping of TNFR1 -609 (G/T), TNFR1-580 (A/G) and TNFR1 -383 (A/C) gene polymorphisms was performed in all subjects by sequencing.

Results: The analysis of polymorphisms revealed the entire absence of TNFR1 -383 (A/G) SNP in our population, and no significant difference of TNFRSF1 -580 (A/G) allele distributions was observed between GC, chronic gastritis and healthy controls. While, the proportion of individuals carrying the TNFR1 -609 T allele was significantly lower in GC group than in controls group [OR=0.5098; IC: 0.29-0.87; p value=0.01].

Conclusion: These results suggest that the TNFR1 -609 T allele has a protective function against GC and G allele had a greater risk for GC. More advanced studies on the production and signaling pathway of TNFR1 are needed to elucidate the functionality of this SNP which can be the target of new therapeutic strategies.

References: