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CCR2-64I is a risk factor for development of bladder cancer

K.F. Narter[1], B. Agachan[2], S. Sozen[2], Z.B. Cincin[2] and T. Isbir[2]

[1]Department of Urology, Uskudar State Hospital, Istanbul, Turkey
[2]Department of Molecular Medicine, Institute for Experimental Medicine, Istanbul University, Istanbul, Turkey

Corresponding author: B. Agachan
E-mail: agachanb@yahoo.com

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ABSTRACT. Chemokines are potent proinflammatory cytokines that are implicated in numerous inflammatory diseases. Proinflammatory gene polymorphisms lead to variations in the production and concentration of inflammatory proteins. We investigated a possible association between polymorphisms in chemokine and chemokine receptor genes (MCP-1 A-2518G and CCR2-V64I) and bladder cancer risk. Genotypes were determined by PCR-RFLP assays in 72 bladder cancer patients and 76 unrelated age-matched healthy controls. There were significant differences in the frequencies of the MCP-1 A-2518G (P = 0.012) and CCR2-V64I genotypes (P = 0.004) between the controls and patients. The MCP-1 A-2518G GG genotype frequencies for controls and cases were 0.039 and 0.11, respectively; individuals who had the GG genotype had a 3-fold increased risk of bladder cancer (P = 0.08). The CCR2-64I/64I genotype frequencies for controls and cases were 0.02 and 0.13, respectively; subjects carrying the 64I/64I genotype had a 5.9-fold increased risk of bladder cancer compared to the other genotypes. Individuals carrying the CCR2-V64I heterozygote or homozygous variant genotype (64I/64I + wt/64I) had a 2.9-fold increased risk of bladder cancer compared with the wild-type genotype (wt/wt). CCR2-V64I heterozygote or homozygous wild-type genotype (wt/wt + wt/64I) frequencies were significantly

decreased in the patient group compared with controls. We conclude that CCR2-64I is a new risk factor for bladder cancer.

Key words: Chemokines; MCP-1 A-2518G; CCR2-V64I; Polymorphism; Bladder cancer

