Reem Moteb Abdulaali Almotairi et al., J Alzheimers Dis Parkinsonism 2018, Volume 8
DOI: 10.4172/2161-0460-C8-058

Association of IL-6 and TNF-α gene polymorphisms with the risk of Alzheimer's disease in Saudi subjects

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Alzheimer's disease (AD) is a progressive neurodegenerative disorder and the most prevalent type of dementia. In Saudi Arabia although the exact percent about the spread of AD has not been estimated, but the experts believe that there are approximately 50,000 patients in Saudi Arabia, most of them being females. Many of studies illustrate the role of the inflammation in development of AD, however no such study has been done on Saudi AD patients. Thus, the aims of this study were to investigate the association of inflammatory mediator's, interleukin-6 (IL-6), Tumour necrosis factor-α (TNF-α) and C-reactive protein (CRP) with increased the risk of Alzheimer's disease (AD). Further, the association between the level of IL-6, TNF-α and CRP with the genetic variation in IL-6 (-174 rs1800795 G/C and -572 rs1800796 C/G), and in TNF- α (-308 rs1800629 A/G and -1031 rs1799724 C/T) and their role in occurrence of AD in among Saudi ethnic population was investigated. A total of 47 Saudi subjects with age (65-90 years) were enrolled for the study, 24 (14 male, 10 female) diagnosed as AD patients and 23 (11 male, 12 female) served as normal controls. The level of biomarkers (IL-6, TNF-α and CRP) were assessed by ELISA (Quntikine®ELISA). Single nucleotide polymorphism (SNP) in selected genes were analyzed by RT-PCR using Taqman assay. This study showed that TNF- α was higher in AD patients with CC and GC genotypes for IL-6 gene SNPs rs1800796 (P=0.062) and rs1800795 (P=0.066) respectively. The level of IL-6 was also found to be significantly low among AD patients with AG genotype comparing to AD patients with GG genotype for -308 A/G (rs1800629) of TNF-α gene (P=0.040). In conclusion; The level of inflammatory cytokines IL-6 and TNF-α may play role in the progression of AD depending on specific genotypes among Saudi AD patients.

Biography

Reem Almotairi is currently pursuing master's at Biochemistry Department, College of Science, King Saud University, Riyadh, Saudi Arabia. And certified with the license of Health Professionals Classification, Under the name "Laboratory Technician", from Saudi Commission for Health Specialties.

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