The expression of IL-7RA in Egyptian patients with multiple sclerosis

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Comp Clin Pathol DOI 10.1007/s00580-015-2064-5

Abstract Multiple sclerosis has a clinically significant heritable component. The interleukin 7 receptor alpha (IL-7RA) has been recognized as a susceptibility gene for multiple sclerosis (MS). It is known that demographic, environmental factors, as well as population genetic background have a substantial role in multiple sclerosis development.

The aim of the present study was to assess the relevance of IL-7RA messenger RNA (mRNA) gene expression level in peripheral blood mononuclear cells (PBMC) on MS phenotype (including clinical and magnetic resonance imaging (MRI) parameters). A total of 31 unrelated Egyptian patients with MS compared to 14 unrelated matched healthy controls were included in the study. IL-7RAVEGF-A gene expression and glyceraldehyde-3-phosphate dehydrogenase (GAPDH) as a housekeeping gene were measured by real-time polymerase chain reaction (RT-PCR) using SYBR Green technique. IL-7RA mRNA gene expression level was significantly lower in the MS group compared to the control group ($p<0.001$). Reduced mRNA IL-7RA expression was observed both in patients with MS compared to the control group and in stratified analysis of MSsubtypes: primary progressive MS(PPMS), relapsing progressive MS (RPMS), and secondary progressive MS (SPMS). IL-7RA mRNA gene expression level was not significantly different in MS patients in relapse compared to those in remission ($p>0.05$). There was no statistically significant difference in IL-7RA mRNA gene expression level among MS patients with MRI ≥9 brain lesions compared to MS subjects with MRI <9 brain lesions ($p>0.05$). IL-7RA mRNA gene expression level cannot be used as a stratifying tool in determining disease course. There was no correlation between IL-7RA mRNA gene expression levels and neither age, age of onset, duration of disease, multiple sclerosis progression index, nor expanded disability status scale. These

results confirm the involvement of mRNA gene expression of IL-7RA in MS pathogenesis and suggest that IL-7RA variation may primarily affect chronic disease course.