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# The Role of Chemokines (CCL2, CCL5 and CXCL10) in the Neuroinflammation Among Patients with Multiple Sclerosis

Ahmed Abduljawad Salim • Ihsan E. Alsaimary • Amal Adil Kasid Alsudany

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## Background/Objective(s)

Chemokines and chemokine receptors exert critical roles in the migration of bone marrow-derived and resident cells to sites of inflammation. In addition to functions that support leukocyte recruitment, chemokines also play a role in immune regulation, T cell polarization, induction of respiratory burst, apoptosis, angiogenesis, mitosis, tumor metastasis, wound healing, and secretion of cytokines and extracellular matrix proteases. The main attractions of studying chemokines in multiple sclerosis (MS) are to gain further insight into lesion evolution, the pathogenesis of disease and to identify potential therapeutic targets. However, definitive attribution of pathogenic roles for chemokines and their receptors in human CNS diseases remains challenging.

## Material(s) and Method(s)

A case-control study had been carried out from November 2021 to May 2022, to assess the association between types of chemokines (CCL2, CCL5, and CXCL10) and MS. Participants were MS patients from Multiple Sclerosis Center in Basrah Teaching Hospital, Basrah province. This study was conducted to detect the level of CCL2, CCL5, and CXCL10 in the serum of s with MS by using enzyme-linked immunoassay (ELISA) technology to rate ite ılar study was done by using conventional polymerase chain reaction (PCR) iqu

and sequencing and drawing the 3D protein. A total of 86 patients with MS were involved. The age of patients was between 15-55 years, and 86 individuals were regarded as a control group

## Result(s)

Results showed that the concentration of CCL2, CLL5, and CXCL10 chemokines was significantly higher among MS patients compared with control. Deoxyribonucleic acid (DNA) sequencing of CCL2, CCL5, and CXCL10 showed that there was a convergence between studied CCL2 and that of the GenBank database (NCBI) with identity 439/445 (99%), in which CCL2 had one transition mutation appeared (GGT to GGG). In addition, the reverse CCL2 showed an identity 426/427 (99%) when compared with the GenBank database (NCBI) which found one deletion mutation (TGA to GG-).

## Conclusion(s)

The concentration of CCL2, CLL5, and CXCL10 are elevated in MS, and increase more with longer disease duration. Thus, the level of chemokines and any mutation in their DNA sequence may play a significant role in the pathogenesis of MS.

# Article info

## Identification

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