Human leukocyte antigen among Egyptian patients with Hepatitis C virus vasculitis

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Abstract

Aim of the work:

The aim of this work was to study the different Human leukocyte antigen (HLA) alleles in patients with Hepatitis C virus (HCV) vasculitis and compare them to patients with HCV with no extrahepatic manifestations, in order to detect susceptibility to development of HCV.

Patients and methods:

Fifty consecutive HCV vasculitis patients seeking medical advice at the Rheumatology department of EL Kasr EL Ainy were included in this study. 30 HCV patients with no extrahepatic manifestations seeking medical advice at the Tropical outpatient clinic and the Tropical department were involved in this study. All patients were subjected to detailed history taking, clinical examination, and laboratory investigations. In addition to quantitative Polymerase chain reaction measurement and HLA genotyping. Abdominal ultrasonography was done to both cases and controls. Cryoglobulins and complement 3 and 4 were done to the HCV vasculitis group.

Results:

The group of 1st alleles more common in patients with HCV vasculitis were alleles DRB1*3, DRB1*4, DRB1*7, DRB1*10, DRB1*13, this group was statistically higher in the HCV control group (p=0.002, OR=5.250, [95% CI 1.854-14.869]). The group of 2nd alleles more common in patients with HCV vasculitis were alleles DRB1*1, DRB1*4, DRB1*8, DRB1*13, DRB1*14, and this group was also statistically higher than in the HCV control group (p=0.022, OR=3.500,

[95% CI 1.291-9.489]). On the other hand, the group of 1st alleles more common in the HCV control group were alleles DRB1*1, DRB1*9, DRB1*11, DRB1*14, and this group was statistically higher than in patients with HCV vasculitis (p=0.002, OR 0.19, [95% CI 0.67-0.539]). Similarly, the group of 2nd alleles more common in the HCV control group were alleles DRB1*3, DRB1*7, DRB1*11, DRB1*15, and this group was statistically higher than in patients with HCV vasculitis (p=0.01, OR=0.251, [95% CI 0.91-0.694])

DRB1*3 was the most common 1st allele in patients with HCV vasculitis, but the difference in frequency between the 2 groups did not reach statistical significance (p=0.053, OR=1.467, [95% CI 0.398-3.243]). DRB1*9 of the 1st allele and DRB1*15 of the 2nd allele were the most common alleles in the HCV control group with a statistical significance (p=0.002, OR=0.800, 95% CI 0.178-2.931 and p=0.005, OR=0.115, [95% CI 0.22-0.585] respectively)

Conclusion:

Human leukocyte antigen, could play a role in the pathogenesis and presentation of patients with HCV vasculitis, which increase the susceptibility of certain patients according to their genetic background and certain HLA polymorphisms to the development of vasculitis. On the other hand, other HLA alleles could be protective and decrease the incidence of development of vasculitis despite the infection with HCV.

Keywords: HCV vasculitis – Human Leukocyte Antigen

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List of Abbreviations

- ACPA: Anti-citrullinated peptide antibodies
- ALT: Alanine transaminase
- AS: Ankylosing spondylitis
- AST: Aspartate transaminase
- BVAS: Birmingham Vasculitis Activity Score
- C3: Complement 4
- C4: Complement 4
- CBC: Complete blood picture
- CG: Cryoglobuilns
- CI: Confidence interval
- EHM: Extrahepatic manifestations
- ELISA: enzyme linked immunosorent assay
- EMG: Electromyography
- ESR: Erythrocyte Sedimentation rate
- EULAR: European League Against Rheumatism
- GC: Glucorticoids
- HCQ: Hydroxychloroquine
- HCV: Hepatitis C virus
- HLA: human leukocyte antigen
- HSP: Heat shock protein gene
- Mb: megabases
- MC: Mixed cryoglobulinemia
- MHC: Major histocompatbility complex
- MIC: MHC class I polypeptide related
- MTX: Methotrexate

- OR: Odds ratio
- P value: Probability value
- PCR: Polymerase chain reaction
- RA: Rheumatoid arthritis
- RF: Rheumatoid factor
- RM: Rheumatic manifestations
- SD: standard deviation
- SE: Shared epitope
- SLE: Systemic lupus erythrematosus
- SS: Sjögren's syndrome
- SSZ: Sulfasalazine
- TAP: Transporter associated with antigen processing genes
- TNF: Tumor necrosis factor-alpha
- VDI: Vasculitis Damage index
- WBC: White Blood cells

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