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The preliminary results of microRNA gene expression in patients with Crimean-Congo hemorrhagic fever

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Statement of the Problem: Crimean-Congo hemorrhagic fever (CCHF) is a tick-borne disease caused by the arbovirus CCHF virus and characterized by a sudden onset of high fever, severe headache, dizziness, back and abdominal pains. The disease now occurs sporadically throughout much of Africa, Asia and Europe and results in an approximately 15% fatality rate. MicroRNAs (miRNAs) are small non-coding RNAs responsible of post transcriptional regulation of gene expression through interaction with mRNAs. They are involved in important biological processes and are often dysregulated in a variety of diseases, including cancer and infections. miRNAs are key players in virus-host interactions and viral pathogenesis.

Aim: The aim of this study is to investigate micro RNA gene expression profiles in patients with CCHF using microarray at first time of the world.

Methodology & Theoretical Orientation: In our study, patients with CCHF will be investigated in miRNA expression profiles using microarray analysis. The miRNA expression levels were compared between case and control populations. Blood samples were taken from CCHF patients and control. Total RNA was isolated from blood samples using miRNeasy Mini kit (Qiagen). Microarray analysis was performed using miRBase Version 21 (Agilent Technologies).

Findings: Result of miRNA expression was analyzed by GeneSpring Version 3.0 bioinformatics program. It has been found that five miRNA expressions of patients with CCHF were statistically significant with regard to controls. MiR-126-3p, miR-144-5p, miR-148a-3p were up-regulated, whereas miR-339-3p and miR-4497 was down-regulated in CCHF patients when compared within controls. This analysis revealed these five miRNAs with a fold change from 1.71 to 27.14.

Conclusion & Significance: The preliminary analysis of miRNAs in CCHF revealed differential miRNA expression in infected individuals and control. The results obtained from the study will contribute to explain the role of miRNA in pathogenesis of CCHF.

Biography

Serdal Arslan is an Associate Professor in Department of Medical Biology, Faculty of Medicine at Cumhuriyet University, Turkey. He completed his PhD in Molecular Biology. His area of expertise is in Molecular Medicine. He has been working on non-coding RNAs in different diseases. He has been conducting molecular genetic studies in Crimean-Congo hemorrhagic fever disease in recent years.

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