Hepatitis C Virus Genotype 3a: Association of Core Gene Mutations with Treatment Response among Patients of Peshawar

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ABSTRACT Background: Genome of Hepatitis C Virus (HCV) reveals a high degree of genetic diversity that could be associated with differential response to Interferon based antiviral therapy. Therapeutic response against chronic HCV infection depends on viral genetic mutations in various sub-genomic regions of HCV including Core gene. Identification of these mutations will help guiding individualized treatment regimens that will result in better treatment outcomes as well as future vaccine development against the virus.

Objective: To determine the association of Core gene mutations with response to conventional Interferon and Ribavirin combination therapy among chronically infected HCV genotype 3a patients of Peshawar.

Methods: This observational study was conducted in Institute of Basic Medical Sciences, Khyber Medical University Peshawar from November 2015 to December 2016 and comprised 100 HCV genotype 3a infected patients that received conventional INF and RBV combination therapy for 24 weeks. Core gene was amplified using qualitative nested PCR followed by cloning and sequencing. Viral gene sequences were analyzed for mutations among patients with Sustained Virological Response (SVR) and Non-responder (NR) patients using MEGA 6 software. Statistical analysis was carried out using SPSS version 20.

Results: Comparison of amino acid sequences among patients who achieved SVR and those who turned out to be non-responders against HCV 3a reference sequence (Isolate NZL1; BAA04609) revealed no specific amino acid changes that were associated with either resistance or favorable response to antiviral therapy. No significant differences were observed between the amino acid sequences of patients with SVR and NR (p-value?0.05).**Conclusion:**Core protein of HCV genotype 3a was highly conserved among the studied isolates. Observed mutations in the amino acid sequence of Core gene had no significant effect on treatment response of chronic HCV infected patients.