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Prevalance and Molecular Epidemiology of HCV in Rawalpindi Region of Pakistan

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Hepatitis C virus (HCV) is one of the major causative agent for hepatitis throughout the globe. HCV can cause a wide range of hepatic manifestations including acute to chronic HCV infection, which may further progress into hepatocellular carcinoma (HCC) and cirrhosis. Globally around 170 million people are infected with HCV whereas approximately 4 million HCV infections are diagnosed each year. Pakistan is the country having the second higher prevalence rates for HCV infections, which is 6%. Pakistan is a country having low economy and around 40% of the population living below the poverty line. Having such higher rates of HCV infection in Pakistani population is alarming as it may greatly affect the economic and health growth of population of Pakistan. This study was aimed to determine the molecular epidemiology of HCV in the population of Rawalpindi region of Pakistan. Rawalpindi is one of the major cities of Pakistan having the population of two million people. Blood sample of 3cc was collected from each patient by a trained phlebotomist and sample was stored at -20˚C. Strip based detection of anti-HCV was used to detect the early exposure to HCV. Viral quantification was carried out using Real Time Polymerase Chain Reaction (RT-PCR) assay. Statistical analysis was carried out using Graph Pad Prism. V.8 software. Chi-square and Fischer's exact tests were used to determine statistical significance. Probability value of <0.05 was considered as statistically significant. A total of 925 anti-HCV positive patients were included in this study. Gender based differentiation of the patients revealed that 45.7% (n=423) of the patients were male, whereas 54.3% (n=502) patients were female. Age based distribution of the patients showed that the most prevalent age group was age group 41-50 with rates of 31.3% (n=288). Similarly age group 31-40 had prevalence rates of 28.7% (n=266) respectively. Viral quantification analysis showed that HCV RNA was detected in 57% (n=525) patients, whereas 43% (n=400) patients were negative for viral RNA (p=0.345, OR: 0.881, 95% CI: 0.679 - 1.14). Viral RNA presence in both the genders was analyzed and it was found that 55% (n=55) of the male patients were positive for HCV RNA, whereas 45% (n=190) male patients were negative for the viral RNA. Analysis in female revealed that 58% (n=292) of the female patients were positive for HCV RNA, whereas 42% (n=210) were negative. Chi square distribution analysis revealed no significant results (p>0.05) among analyzed individuals with odds ratio of 0.881 and confidence interval of (95% CI: 0.679 - 1.14). Viral load analysis revealed that 12% of the infected patients had highest viral load of >600,000 IU/ml..

Biography

Mahnoor Fatima Alvi is a distinguished microbiologist currently serving as a faculty member in the Department of Microbiology within the Faculty of Health Sciences at Comwave Institute, located in F8 Markaz, Islamabad. Known for her academic dedication and expertise, Mahnoor has contributed significantly to the field of microbiology, focusing her research and teachings on critical aspects of microbial science and its applications in health. Through her role, she has inspired numerous students and colleagues alike, fostering an environment of scientific curiosity and advancing knowledge in health sciences.