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Prevalence of hepatitis C virus genotype 3 at Civil Hospital, Karachi, Pakistan

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Aim: This study was designed to find out the frequency of various HCV genotypes present in patients with liver disorders in Karachi, Pakistan.

Materials & Methods: All patients including, injectable drug users (IDUs), recycled syringe users, those who have undergone invasive procedures for different ailments, visiting hepatitis clinic at Civil Hospital Karachi, Pakistan, who were positive for hepatitis C virus by PCR, were screened for the genotyping of hepatitis C virus. Blood samples were collected from the patients in yellow top vacutainers and allowed to clot, then centrifuged and serum was separated and saved at -400C till further testing. RNA extraction was done with Promega Kit and HCV genotyping was done on m2000 rt Abbott, using HCV genotyping Amplification Kit.

Results: In order to know the prevalence of hepatitis C virus genotype in our community, we determined HCV genotype for 951 patients, who were positive for HCV RNA, by PCR. It was observed that the most prevalent HCV genotype was "3" detected in 713 (75%) patients, followed by 1a in 63 (6.6%) cases. Genotype 3 affecting all age groups was observed. Females were affected by genotype 3 than males.

Conclusions: High prevalence of HCV genotype 3 strain among IDUs due to use of recycled syringes and unsafe blood transfusion is a cause of concern for public health professionals in Pakistan; however timely diagnosis may reduce the chances of serious complications due to comparatively effective therapeutic response to available antiviral treatment. Our observations call for developing effective control of factors contributing to high incidence of disease.

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Oligonucleotides library production for isolation of aptamers to detect *E. coli* O157:H7

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Diarrhea can cause major child mortality in developing countries. E. coli O157:H7 is one of the most important serotypes of enterohemorrhagic *Escherichia coli* (EHEC) that can cause diarrhea. It is transmitted to humans through food, and creates complications such as uremic hemorrhagic colitis. Currently, the standard method for the detection of *E. coli* O157:H7 is culture and detection by serology. Recognition by these methods takes more than 36 hours. Thus, access to a test that could detect E. coli O157:H7 in less time is valuable. The aptamers are the oligonucleotides and short single-stranded DNA or RNA or specific proteins that have the ability to specifically bind to target. In this regard, aptamer is used, capable of binding tightly and specifically to target with complex multimeric structures. In this study, a DNA aptamer that can detect *E. coli* O157:H7 from other similar species was constructed by Cell-SELEX (Systematic Evolution of Ligands by Exponential Enrichment). A library of DNA aptamer was made. Streptavidin coated magnetic beads were used to select specific aptamer. Selected aptamers were amplified by PCR, in each step, then cloned and sequenced. A 117 bp aptamer was selected by six rounds of SELEX method. The aptamer specific binding to *E. coli* O157:H7 was also calculated by flow cytometry. Using the new aptamer specific molecular probes may be quick and easy to diagnose clinically used E. coli O157:H7 bacterial infection. On the other hand, the present method is simple and cost effective for specific bacterial detection.

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