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## Delta virus predominates and potentially predicts liver cirrhosis among co-infected Hepatitis B and Hepatitis D virus patients in Pakistan

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**Background & Aim:** High prevalence of Hepatitis Delta Virus (HDV) has been reported from some pockets in Pakistan. Typically, Hepatitis B (HBV) and HDV co-infection causes severe hepatitis and cirrhosis at an early age. We aim to study the clinical outcomes of HBV/HDV co-infection compared to HBV mono-infection in a Punjabi, Pakistani population.

**Method:** Retrospective data on all HBV positive patients was extracted from Hepatitis Prevention and Treatment Program (HPTP) of Pakistan Kidney and Liver Institute in Punjab, Pakistan. Majority (32/50) of the HBV/HDV co-infection were identified from Rajanpur clinic of HPTP. Pre-treatment liver tests, HBV-DNA viral load, HDV-RNA viral load; AST to Platelet ratio (APRI) and Fibrosis-4 (Fib-4) were calculated from standard equations. Cirrhosis was based on APRI ( $\geq 1.5$ ) or/and Fib4 ( $\geq 1.45$ ). HBV-DNA level  $\leq 2,000$  IU and  $\geq 20,000$  IU were categorized as low and high viral load, respectively.

**Result:** 57 (53%) patients were HBV mono-infected and 50 (43%) were co-infected with HDV. Mean age was  $36.2 \pm 12.99$  in the entire cohort and was not different between the two groups. Older age correlated to a higher APRI and Fib-4 scores in both groups. The two groups were predominantly male, 75% in HBV and 76% HBV/HDV co-infected patients. Sharing of tooth brushes was reported to be significantly higher by HBV mono-infected patients;  $p = 0.005$ . Other risk factors were equally prevalent. 78% of HBV mono-infected and 79% HBV/HDV co-infected patients had  $\leq 20,000$  IU/ml HBV-DNA; While 56% and 44% had  $\leq 2,000$  IU/ml HBV DNA levels, respectively. APRI and Fib-4 scores were significantly higher in HBV/HDV co-infected;  $p = 0.01$ . 29 patients were diagnosed with cirrhosis in HBV/HDV co-infected group, while no patient had cirrhosis in HBV mono-infected group. Within HBV/HDV co-infected group, mean HDV-viral load was significantly higher compared to HBV viral load;  $p = 0.05$ . Mean HBV-DNA and HDV RNA levels in non-cirrhotics were 326411 and 35358369; and in cirrhotics 3340429 and 31867418 IU/ml, respectively. 4 patients had undetectable HBV viral load and one of them had cirrhosis. 10 patients were cirrhotics with  $\leq 2,000$  IU/ml of HBV-DNA. The mean HDV RNA level in these 10 patients was 63, 000000 IU/ml. Mean HDV viral load was one log higher in patients with  $\leq 20,000$  IU/ml HBV-DNA compared to those with  $\geq 20,000$  IU/ml HBV-DNA viral load.

**Conclusion:** Overall mode of transmission of HBV and HBV/HDV infections are similar in Punjab. More patients had higher liver fibrosis scores in HDV/HBV co-infected groups. The significantly low level of HBV, in the co-infected population especially cirrhotic indicates that liver disease is driven by HDV rather than HBV infection among co-infected Pakistani patients and peg-interferon alone might be the best treatment option for them.

### Biography

Kamran Shafiq has completed his MBBS from Allama Iqbal Medical College. He has pursued his House Surgeon from Services Hospital Lahore. He has completed his MRCP part 1 followed by PLAB test and Postgraduate training in UK. He has worked as SHO in General Medicine and sub specialties for 3½ years. He did his MRCP part 2 London. He started his Higher Medical training and completed his Specialist Registrar training in General Internal Medicine and Gastroenterology. He has also completed his Fellowship in Advance Hepatology involving transplant experience at Leeds and General Hepatology at Sheffield. He has been trained in diagnostic and therapeutic endoscopy. He has been working as Consultant Gastroenterologist and Hepatologist in UK. He has been the Departmental Lead for Training and Education in City Hospitals Sunderland. He has been dedicated Endoscopy Trainer for Specialist Registrars and Nurse Endoscopists. He became Fellow of Royal College of Physicians and Surgeons of Glasgow. He became Fellow of European Board of Gastroenterology and Hepatology and Member of American College of Gastroenterology. He is currently working at Pakistan Kidney and Liver Institute.

### Notes:

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