

Prevalence of HBV & HCV Infection in Patient on Haemodialysis in A Tertiary Health Care Centre, Bhavnagar

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Abstracts: **Introduction:** Hepatitis B (HBV) and hepatitis C (HCV) viral infections are important causes of morbidity and mortality in haemodialysis patients and pose problems in the management of the patients in the renal dialysis units. Chronic renal failure patients do not clear these viral infections efficiently. The present study was undertaken to estimate the prevalence of HBV and HCV infection among Haemodialysis patient. **Aims & Objective:** The present study was undertaken to determine the prevalence of HBV and HCV infection by rapid antigen antibody detection testing in serum samples. **Methods:** This study was done in Sir-T Hospital from August, 2016 to September, 2016. Total 125 samples were tested from the patients undergoing frequent dialysis due to chronic renal failure. The dialysis unit has 20 haemodialysis machines out of 6 machines exclusively used for known sero positive patients. Blood samples were drawn from the patients before the start of the first haemodialysis and every month thereafter. The serum samples were screened for HBsAg and anti HCV antibody. Testing of the serum samples of the patient was done by the commercially available rapid Anti HCV (Immunocromatography for the rapid visual detection of HCV in serum) and rapid HBsAg (Immunocromatography for the rapid visual detection of HBsAg in serum) in serology section in the Microbiology Laboratory at Sir T hospital, Bhavnagar. **Result & Observation:** Total 125 samples were tested from the patients undergoing frequent dialysis due to chronic renal failure; out of which 18 [14.4%] samples were sero positive, in which 6 [33.3%] HBsAg was found positive; 12[66.7%] Anti HCV was found positive. In our study we have found 4 [22.2%] dual HBV & HCV infection. **Conclusion:** A significant risk of cirrhosis development and de-compensation of liver function is also observed in HBV and HCV infected haemodialysis patients. The risk is greater among the CRF patients due to the frequent exposure to blood from transfusions and extracorporeal circulation during haemodialysis. Immunization with HBV vaccine before beginning the dialysis will reduce infection of HBV and strict adherence to universal precautions in the dialysis units may help to decrease the prevalence of both infections among these high-risk patients. [Singel H NJIRM 2017; 8(2):164-165]

Key Words: HCV (hepatitis C virus), HBV (hepatitis B virus), ICT (immunocromatography), CRF (chronic renal failure).

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Methods: This study was done in Sir-T Hospital from August, 2016 to September, 2016 to understand the prevalence of HBV and HCV infection among patient undergoing frequent Haemodialysis.

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The serum samples were screened for HBsAg and anti HCV antibody.

Testing of the serum samples of the patient was done by the commercially available rapid Anti HCV (Immunocromatography for the rapid visual detection of HCV antibody in serum) and rapid HBsAg (Immunocromatography for the rapid visual detection of HBsAg in serum) in serology section in the Microbiology Laboratory at Sir T hospital, Bhavnagar.

HBsAg Test Principle: HEPATMCARD is a Qualitative test based on immunochromatography capture or sandwich principle. The test card includes a combination of monoclonal anti-body gold conjugate (colloidal gold) and polyclonal solid phase antibodies which selectively binds Hepatitis B surface antigen with high degree of sensitivity. The test sample is introduced into well and flows laterally through an absorbent pad where it mixes with the signal reagent. If the sample contains HBsAg, the colloidal gold-antibody (mouse) conjugate binds to the antigen,

forming an antigen-antibody-colloidal gold complex. The complexes then migrate through the nitrocellulose strip by capillary action, which are stopped by an immobilize antibody zone forming a purple band. The formation of the first purple band (T zone) is indicative of hepatitis positive. To serve as a procedural control, an additional line of antibody antimouse IgG has been immobilized on the card. If the test is performed correctly, this will result in the formation of purple band upon contact with the conjugate as a control line.

HCV Test Principle: The SD BIOLINE HCV test contains a membrane strip, which is pre-coated recombinant HCV capture antigen (core NS3, NS4 and NS5) on test band region. The protein A-colloid gold conjugate and serum sample moves along the membrane chromatographically to the test region (T) and forms a visible line as the antigen-antibody-protein A gold particle complex form with high degree of sensitivity and specificity. The SD BIOLINE HCV test window has been clearly labeled. T for test line and C for control line. Control line is used for procedural control and should always appear if the test procedure is performed correctly.

Result: Total 2537 serum samples were tested for HBsAg testing and 1602 serum samples were tested for HCV testing; in which 125 samples were tested from the patients undergoing frequent dialysis due to chronic renal failure; out of which 18 [14.4%] samples were sero positive, in which 6 [33.3%] HBsAg was found positive; 12 [66.7%] Anti HCV was found positive. In our study we have found 4 [22.2%] dual HBV & HCV infection. HBV infection is less prevalent than HCV in haemodialysis units. Dual infection with HBV and HCV leads to more aggressive liver disease.

Table: 1 Study variables in comparison between HBsAg and HCV groups

Total Sample Taken At Dialysis Ward -125		
Total HBsAg Reactive	Total HCV Positive	Total HBsAg & HCV Both Reactive
6[4.8%]	12[9.6%]	4[3.2%]

Conclusion: Significant immune status disturbances were registered in haemodialysis patients infected with both HBV and HCV compared to patients with HBV and HCV alone.²

The risk is greater among the CRF patients due to the frequent exposure to blood from transfusions and extracorporeal circulation during haemodialysis.

Immunization with HBV vaccine before beginning the dialysis will reduce infection of HBV and strict adherence to universal precautions in the dialysis units may help to decrease the prevalence of both infections among these high-risk patients.

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