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## **Screening hemodialysis patients for hepatitis C in Vietnam: the inconsistency between common hepatitis C virus serology and virology tests**

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**Objectives:** Selecting the appropriate screening method and interval for early detecting hepatitis C virus (HCV) infection in low-resourced hemodialysis settings is a challenge. HCV-RNA-positive patients may be negative to HCV-core antigen (HCV-coreAg), anti-HCV and genotyping tests. We aims to clarify the inconsistency between anti-HCV, HCV-coreAg, HCV-RNA and HCV genotyping tests in hemodialysis patients and determine the reliability of HCV-coreAg as a routine two-monthly screening strategy.

**Methods:** Repeated cross-sectional surveys were conducted two-monthly between 2012 and 2014 at the largest standardized district hemodialysis unit in southern Vietnam. Blood samples were analyzed for anti-HCV antibodies, HCV-coreAg, HCV-RNA and HCV genotype. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), accuracy with 95% Confidence Interval and Kappa statistic of HCV-coreAg and anti-HCV tests against HCV-RNA were calculated for comparison.

**Results:** Of the 201 patients tested 26 tested positive concurrently for HCV-RNA and HCV-coreAg while 175 patients tested negative concurrently for HCV-coreAg and HCV-RNA. Eight (31%, 8/26) HCV-RNA-positive patients could not be genotyped due to a low viral load. Among 190 patients (95%, 190/201) tested anti-HCV-negative, 10% (18/190) were HCV-RNA-positive while among 11 anti-HCV-positive patients, 27% (3/11) were HCV-RNA-negative. HCV-coreAg test performed significantly better than anti-HCV test for sensitivity (100% versus 31%), NPV (100% versus 90%) and accuracy (100% versus 90%). HCV-coreAg and anti-HCV tests performed no differently for specificity (100% versus 98%) or PPV (100% versus 73%). Kappa values for HCV-coreAg and anti-HCV test were 1 and 0.39 respectively.

**Conclusions:** For early detection for the purpose of infection prevention requires the highest level of sensitivity making HCV-coreAg the logical choice as a two-monthly screening method. HCV-coreAg test is cost-effective, less labor-intensive and accurate for patients with low viral loads making it appropriate for low-resourced settings. Repeating genotyping of HCV-coreAg-positive patients may need to prevent untypable results due to low viral load.