Thesis title	Prevalence of Hepatitis C Virus Infection in Renal Transplant Recipients
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ABSTRACT

Hepatitis C virus (HCV) infection is highly prevalent in kidney transplant (KT) patients but the association between morbidity or mortality and infection is still unclear. The objectives of this pilot study were 1) to determine the prevalence of HCV infection in Thai KT patients as well as in a Thai general population, 2) to identify any risk factors involved, 3) to compare the diagnostic efficacy of HCV serological assays in relation to the detection of HCV RNA by RT-PCR, and 4) to monitor the patients for the incidence of hepatitis during a 6-month follow-up. To achieve these goals, serum samples were collected from 98 KT patients and 60 normal subjects. Clinical history and demographic data of the patients were collected. The evidence of HCV infection was determined by

detection of antibody to HCV (anti-HCV) by a microparticle enzyme immunoassay and detection HCV RNA by reverse transcription-polymerase chain reaction (RT-PCR). Prevalence of hepatitis B virus infections was also evaluated using HBsAg, anti-HBs, and anti-HBc assays. Liver function tests (LFT) including serum aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP), and total bilirubin were assessed both at the enrollment of the patients and at the 6-month follow-up.

Of 98 KT patients, 14 patients were identified as having both anti-HCV and HCV PCR positive, 3 patients had only anti-HCV positive, and 7 patients had only HCV RNA positive. Therefore, the prevalence of HCV infection if determined by anti-HCV assay alone was 17% (17/98) and by HCV PCR was 21% (21/98). Overall prevalence by the 2 tests combined was 24% (24/98) which was much higher than 5% (3/60) of healthy blood donor controls. Lower positive rate by the anti-HCV assay may be the results of immunosuppressive drugs required to maintain the graft status of the patients. These results also suggested that the use of immunoassays alone might not be adequate to determine HCV infection in transplant patients.

Majority of patients who had HCV infection (15/24, 63%) were on maintenance hemodialysis (HD), 6 patients (25%) were on continuous ambulatory peritoneal dialysis (CAPD), and 3 patients (12.5%) were on both HD and CAPD before transplantation. The risk of HCV infection is higher in patients who were on HD than patients on CAPD (63% vs. 25%). The duration on HD of

HCV infected patients was significantly longer than that of non-infected patients ($p < 0.05$).

The amount of blood transfusion before transplantation and LFT levels were not significantly different between HCV infected and non-infected patients. AST, ALT, ALP, and total bilirubin levels were normal in most infected patients at the beginning of this study. Slightly elevated levels of AST and ALT were found in 2 patients who had HCV RNA positive. No clinical hepatitis was observed during the 6-month period. At 6 months follow-up, LFT of all patients were normal.

The prevalence of HBsAg, anti-HBs, and anti-HBc in 98 KT patients were 3%, 71% and 63%, respectively. There was one patient who has HBsAg and HCV PCR positive, suggesting a possible active co-infection by both hepatitis viruses. However, LFT of this patient remained normal during this study.

In conclusion, the data suggest that: a) HCV infection is highly prevalent in Thai KT patients (24%); b) patients on HD were at higher risk of contracting HCV compared with patients on CAPD; c) patients on HD for a longer duration and receiving more units of blood transfusion were more likely to have HCV infection; d) all KT patients in this study had no clinical signs of hepatitis and their LFT appeared normal during the 6-month follow-up. Therefore, the role of HCV in causing hepatitis in KT patients needs to be further investigated. If clinical hepatitis occurs, liver biopsy and histopathology study should be performed. Laboratory tests such as *in situ* hybridization with a virus-specific probe may be used to identify the cause of hepatitis.