

中文題目：利用 C 型肝炎病毒抗體的 Signal-to-Cutoff Ratio 來預測血液透析患者 C 型肝炎病毒血症

英文題目：Utilization of Signal-to-Cutoff Ratio of Hepatitis C virus antibody assay in Predicting HCV viremia among hemodialysis patients

作者：高皓璽<sup>1</sup>，陳國書<sup>1</sup>，林志郎<sup>2</sup>，張家昌<sup>2</sup>，李建宏<sup>1</sup>

服務單位：基隆長庚醫院內科部腎臟科<sup>1</sup>基隆長庚醫院內科部胃腸肝膽科<sup>2</sup>

**Background:** Hepatitis C virus infection is a common cause of acute and chronic hepatitis in hemodialysis population. To prevent cross infection between hemodialysis patients during hemodialysis procedure, routine screening of anti-HCV antibody is recommended. However, a reactive anti-HCV EIA test is not equal to active HCV infection. An expensive RT-PCR study is required to confirm HCV viremia. This will significantly increase the cost burden because payment for each hemodialysis treatment is very low in Taiwan. Thus, it is useful to identify parameters which could predict HCV viremia among anti-HCV- reactive patients. In this study, we examined the usefulness of signal-to-cut (S/CO) ratio of anti-HCV antibody in discriminating HCV viremia from non-viremia among anti-HCV- reactive hemodialysis population.

**Materials and Methods:** In a cross-sectional measurement of anti-HCV antibody among 369 chronic hemodialysis patients, 44 showed reactive and 9 grey zone reaction for anti-HCV. These 53 patients received further blood test for the measurement of AST, ALT and HCV RNA (by RT-PCR). The results of RT-PCR were used as dependent variable. Then, S/CO ratios of anti-HCV, serum AST, ALT levels, age and duration of hemodialysis were used as independent variables to undergo ROC curve and logistic regression analysis.

**Results:** Thirty-six of the 53 reactive and grey zone patients were positive for HCV RNA in RT-PCR study. Patients who were positive for HCV RNA had higher S/CO ratio ( $p < 0.01$ ), higher AST and ALT levels ( $p < 0.01$ ), and longer duration on hemodialysis ( $p < 0.05$ ) than those negative for HCV RNA. Logistic regression revealed that only S/CO ratio was a significant predictor for HCV viremia ( $p = 0.004$ ). ROC curve analysis showed that S/CO ratio had a highest area under curve (0.967,  $p < 0.001$ ), followed by ALT (0.826,  $p < 0.001$ ), AST (0.778,  $p = 0.001$ ), duration on hemodialysis (0.606,  $p = 0.215$ ) and age (0.426,  $p = 0.386$ ) in discriminating HCV viremia from non-viremia. Using a cutoff S/CO ratio of 65, we can confirm HCV viremia with a diagnostic specificity of 100%, sensitivity of 80.1% and positive predictive value of 100% .

**Conclusion:** S/CO ratio is a useful indicator in predicting HCV viremia among

anti-HCV- reactive hemodialysis patients. Patients with a S/CO ratio  $> 65$  can be regarded as active HCV infection. Alternatively, patients with reactive anti-HCV but S/CO ratio  $< 65$  should receive further RT-PCR test.