

CONCORDANCE BETWEEN MISSED DAYS OF HEPATITIS B VIRUS ANTI-VIRAL THERAPY AND VIROLOGICAL BREAKTHROUGH

Sheppard-Law S^{1,2,3}, Kermeen M⁴, Holdaway S⁵, George J^{5,6}, Zekry A^{7,8}, Dore G¹, Zablotska-Manos I¹, Maher L¹

The Kirby Institute, UNSW Australia ¹, Sydney Children's Hospital Network, Australia ², University of Technology, Sydney, Australia³, Concord Repatriation General Hospital, Concord Australia ⁴, Storr Liver Centre, Westmead Institute for Medical Research, Westmead Hospital and University of Sydney, NSW Australia ⁵, Westmead Clinical School, University of Sydney, Westmead Australia ⁶, St George Hospital, Department of Gastroenterology & Hepatology, Kogarah, Australia ⁷ St George Hospital Clinical Group School of Medicine, UNSW Australia ⁸

Background: Adherence to treatment is imperative to achieve and maintain suppression of the hepatitis B virus (HBV). To date, there has been limited research on what defines adherence to HBV therapies. Our study aimed to investigate the relationship between missed days of anti-viral therapy and HBV DNA virological breakthrough.

Methods: In 2014 277 patients receiving anti-viral therapies in three Sydney tertiary hospitals completed a cross-sectional survey. Data were excluded from analyses if participants reported factors known to affect HBV DNA viral suppression (n=66) or if HBV virology results were not available (n=7). Self-reported non-adherence was assessed as 0 to > 6 single days of treatment missed and 2 to 6 consecutive days missed in the last 30 days. Associations between missed days and virological breakthrough (defined as > 10-fold rise in serum HBV DNA above nadir or after achieving virological response in the last 12 months) were examined to determine the level of non-adherence most strongly associated with virological breakthrough. Associations were summarised as odds ratios (OR) and relative risks (RR).

Results: Of the 204, 32 participants (15.6%) had quantifiable HBV DNA levels (> 20 IU/mL), with 15 (46.8%) of these participants experiencing virological breakthrough. Participants reported never missing medication (n=130, 63.7%), missing one day (n=23, 11.3%), missing >one day (n=23, 11.3%) and missing >2-6 days (n=15, 7.3%) and missing >6 days (n=13, 6.4%). The most discriminating definition of non-adherence was missing > one day of medication (RR=8.3; OR=10.2, 95%CI: 3.1-33.8, p≤0.001, ROC 0.76) and sensitivity and specificity of detecting the outcome of 73.3% and 78.8%.

Conclusion: This study produced an evidence-based definition of non-adherence that informs clinical practice, in that patients reporting missing >1 day of medication in the previous 30 days have an increased risk of virological breakthrough, and provides the basis for key patient education messages.