

1145-92-1400

Preeti Dubey* (pdubey1@luc.edu), 37 Rockford Avenue, Unit 21, Forest Park, IL 60130.
Mathematical modeling of hepatitis delta virus (HDV) dynamics during prenylation inhibitor lonafarnib (LNF) treatment. Preliminary report.

Hepatitis delta virus (HDV) is a satellite virus that propagates in individuals infected with hepatitis B virus. It is the most severe form of chronic viral hepatitis infection in humans, infecting about 15-20 million persons worldwide. Therapy with interferon alpha is unsatisfactory. The prenylation inhibitor lonafarnib (LNF) has proven anti-HDV activity in early phase clinical trials. In LOWR HDV-3 clinical trial 12 patients were randomized into 3 groups: LNF 50/75/100mg + ritonavir (RTV) 100mg once daily for 24 weeks. We identified four different viral kinetic patterns in each dosing group: (i) a triphasic decline consisting of a first phase with rapid virus load decline, followed by a “shoulder phase” in which virus load decays slowly or remains constant, and a third phase of renewed viral decay, (ii) a flat partial response (FPR), consisting of a first phase with rapid virus load decline followed by a lower set point of viral load, (iii) a rebound, in which FPR or triphasic kinetic patterns were observed followed by a rebound in viral load (due to varying effectiveness of drug) and (iv) non-response. I will present developed mathematical model that provides insights into HDV-host dynamics and LNF+RTV efficacy. (Received September 21, 2018)