



A Case of Coinfection of Two Hepatitis C Genotypes: Treating According to Routine Practice Guidelines

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Introduction

- To date, there has been limited characterization of treatment approaches for rare coinfections involving different HCV genotypes.
- Direct-acting antivirals (DAAs) have shown to offer high cure rates across HCV genotypes given their broad-spectrum activity. There are currently no standardized clinical guidelines for the management of poly-genotypic HCV infections.
- There is limited research on the prevalence of poly-genotypic HCV infections in the United States, though existing studies indicate that most cases occur among intravenous drug users (IVDU).
- This case report describes an individual with a prior history of IVDU and polysubstance dependence, infected with a chronic HCV coinfection of genotypes 1a and 3 for nearly 20 years.
- The patient had no prior HCV treatment, and it is unknown which genotype was present first.

Objectives

- To present a case of chronic HCV coinfection with genotypes 1a and 3.
- To demonstrate the effectiveness of sofosbuvir/velpatasvir combination therapy, a DAA, in successfully eradicating both HCV genotypes.
- To highlight the absence of standardized treatment guidelines for poly-genotypic HCV infections and address the current gap in the clinical management of such infections.

Case Presentation

Patient	42-year-old female with chronic viral hepatitis C for more than 20 years and a history of intravenous drug use, polysubstance dependence, opioid dependence, asthma, and migraines, was found to be infected with an HCV coinfection of genotypes 1a and 3, confirmed using quantitative real-time PCR testing.
Pre-Treatment Assessment	Labs prior to treatment: <ul style="list-style-type: none"> • Prothrombin Time (PT): 10.3 sec • International Normalized Ratio (INR): 1.0 • Platelet Count: 185 × 10³/μL • Alanine Aminotransferase (ALT): 126 U/L ↑ • Gamma-Glutamyl Transferase (GGT): 71 U/L ↑ • Albumin: 4.5 g/dL • Total Bilirubin: 0.4 mg/dL • Liver Fibrosis Testing: Mild fibrosis (F0, A2) • Creatinine: 0.92 mg/dL • Blood Urea Nitrogen (BUN): 22 mg/dL • Viral Load: High, 35 million viral copies
Treatment Protocol	Treatment with sofosbuvir/velpatasvir combination therapy was administered for 12 weeks, as recommended by HCV guidelines for single-genotype infection.

Results

Outcome:

- Following 12 weeks of sofosbuvir/velpatasvir combination therapy, the patient achieved a sustained virologic response (SVR), with both HCV genotypes 1a and 3 eradicated.

Post-Treatment Assessment:

- The patient's viral load became undetectable. Nausea was reported as a side effect during treatment, but no other adverse effects were noted.

Discussion and Conclusion

- Current HCV treatment guidelines focus on mono-genotypic infections and do not address poly-genotypic cases.
- In this case, sofosbuvir/velpatasvir combination therapy resulted in the successful treatment of an HCV coinfection with genotypes 1a and 3.
- This success aligns with the broad-spectrum activity of certain DAAs.
- Poly-genotypic HCV infections are rare, and this case adds to the limited, but growing, evidence supporting the use of DAAs in complexed HCV infections.
- The patient's history of IVDU highlights the need for greater awareness and more comprehensive research on poly-genotypic HCV infections, particularly in at-risk populations.
- The case supports the potential effectiveness of a broad-spectrum DAA in managing HCV coinfection cases, but further research is needed.
- There are currently no standardized treatment guidelines for poly-genotypic HCV cases.
- The case emphasizes the need for additional research to better understand the prevalence of poly-genotypic infections in our area, as well as the treatment constraints they may present.