



# OUTBREAK OF HEPATITIS C INFECTION DUE TO PROPOFOL VIAL REUSE AMONG PSYCHIATRIC PATIENTS DURING ELECTROCONVULSIVE THERAPY



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## Background

- The hepatitis C virus (HCV) is a bloodborne virus commonly transmitted through sharing of injection equipment, reuse or inadequate sterilization of medical equipment, especially syringes and needles in healthcare settings and transfusion of unscreened blood, blood products.
- Administration of propofol, an intravenous anesthetic, has been associated with several iatrogenic infections commonly related with reuse of syringes for multiple patients and prolonged exposure to the environment when vials were left open.
- A cluster of HCV infections among psychiatric patients who underwent electroconvulsive therapy (ECT) for schizophrenia in the same setting is described.

## Materials/Methods

- An epidemiological investigation was conducted to identify the unusual increase in Anti-HCV positivity in the psychiatric clinic patients during routine follow-up testing.
- In this query the likely source of infection, and the route of transmission was evaluated.
- All patients admitted to Psychiatric Clinic between July-September 2011 were tested for Anti-HCV positivity with Cobas 6000 analyzer (Roche, Germany).
- HCV PCR was performed for all Anti-HCV positive sera (Linear Array Hepatitis C Genotyping Assay, Roche).
- NS5B region of the virus was amplified, using primers PR3.1, PR4, PR5 and sequenced using Abi 3500 Genetic Analyser (Applied Biosystems). Multiple sequence alignments were generated using the Clustal X 2.012 version.
- Phylogenetic analyses were conducted using MEGA version 6. The phylogenetic tree was constructed by the neighbour joining method.

## Conclusions

- The study documents the risk of nosocomial transmission of HCV and the importance of infection control procedures in the operating rooms and highlights the crucial role of molecular strategies, especially sequence-based phylogenetic analysis of cloned viral isolates, in the investigation of HCV outbreaks.

## Results

- Twenty-three recent HCV infections were identified.
- Based on molecular analysis and epidemiological investigation, transmission between the source patient (a HCV-positive man who was the first patient of the ECT session) and outbreak patients was highly suggestive.
- All patients except four that were immediately treated with PEGylated interferon-alpha-2b and ribavirin were infected with HCV type 1b.
- Molecular characterization of HCV clones by sequence analysis of nonstructural NS5 region of the genome showed close homology between the viral isolates from the source and outbreak patients. Among the risk factors investigated, only that of having ECT and administration of propofol prior to the procedure in the same session of the same day reached statistical significance.
- The investigation showed that the source patient and outbreak patients shared only the administration of propofol in multidose vials.

