

PHYLOGENETIC TRANSMISSION CLUSTERS OF HEPATITIS C VIRUS AMONG PEOPLE WHO USE DRUGS WHO ACCESS HARM REDUCTION SERVICES IN THREE SOUTH AFRICAN CITIES, 2016 – 2017

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Background:

<People who inject drugs (PWID) including men who have sex with men who use drugs (MSM/UD), are disproportionately infected with HCV in SA. Samples were collected from PWID and MSM/UD with HCV viraemia in three South African cities (Pretoria, Durban, and Cape Town) as part of a larger study. Majority (99%) were genotype 1 and 3. Infection transmission dynamics can be inferred using phylogenetic clustering, which can inform prevention interventions. We aimed to use genetic sequence and demographic data to investigate factors associated with HCV phylogenetic clustering among PWID and MSM/UD in SA.>

Methods:

<RNA Sanger sequencing of the Core-E2 was performed on genotypes 1 and 3. Descriptive analysis of the demographic data was conducted on sequenced samples. Phylogenetic trees were inferred using maximum likelihood implemented in RAxML (Cipres Gateway). Clusters were determined on Clusterpicker using a 90% bootstrap threshold and a genetic cut-off of 0.035. Factors associated with clustering were assessed using logistic regression (STATA 17).>

Results:

<The Core-E2 was amplified on 232 samples and successfully sequenced for 130 participants. Phylogenetic clustering was found with 55% of participants (n = 71), with 44 having 1a and 27 with 3a. Ten clusters were identified, ranging from 3 to 15 participants. Clustering among the mixed ancestry group in Cape Town was noted with ages 18 – 55 years. Factors independently associated with phylogenetic clustering included: sharing a needle (aOR 4.87, 95% CI 1.20 – 19.79, *p* 0.027), Age ≥29 (aOR 3.02, 95% CI 1.12 – 8.16, *p* 0.029), and mixed ancestry race (aOR 5.90, 95% CI 1.44 – 24.23, *p* 0.014).>

Conclusion:

<High clustering suggests transmission especially among the mixed ancestry group in Cape Town. There is a need to reduce transmission through providing safe injecting equipment and tailored education for preventing HCV transmission between older experienced drug users with young users.>

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