

1273 Identification of Clinical Phenotypes in MSM With HIV From a Prospective Study on Acute HCV and STIs

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Background: This study aimed to identify clinical phenotypes (CPs) among MSM with HIV enrolled in a prospective study on acute/recent HCV infections (ARHCV) and bacterial STIs and to assess their correlation with different risk profiles.

Methods: Between 2021 and 2023, MSM with HIV were recruited from 12 centers across the Madrid region. Participants were assessed at baseline, 6 months, and 12 months. At each visit (or when indicated), screening for HCV and STIs was conducted alongside questionnaires on sexual behavior, substance use, and mental health (using HADS and adult ADHD scales). A total of 38 variables spanning four domains—sociodemographic/clinical, mental health, sexual behavior, and substance use—were analyzed. Principal component analysis (PCA) was used for dimensionality reduction, followed by participant clustering via Hierarchical Clustering (HC) as the primary method and K-means clustering (KMC) for sensitivity analysis. The adequacy of the PCA model was evaluated using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test. Statistical analyses were performed in R version 4.4.1 (packages: Tidyverse, Cluster, Factoextra, NbClust, tidyr).

Results: 529 MSM were enrolled (median age 41 years, 88% Caucasian, 62% native Spaniards). During follow-up, 332 STIs (114 syphilis, 121 gonorrhea, 97 chlamydia) were diagnosed in 212 participants, and ARHCV was detected in 24 participants. PCA revealed 6 factors explaining 59% of the observed variability (KMO score: 0.794) and HC identified 3 optimal CPs (Figure): CP1: 328 participants (62.0%) with a lower frequency of high-risk sexual practice (receptive condomless anal sex) and minimal drug use. CP2: 133 participants (25.1%) engaging in frequent high-risk sexual practices and moderate drug use. CP3: 68 participants (12.9%) with a history of very high-risk sexual practices (e.g., fisting) and significant drug use, including injection and intrarectal administration. ARHCV was identified in 4 participants (1.2%) in CP1, 4 (3.0%) in CP2, and 16 (23.5%) in CP3 ($P < 0.001$). One or more STIs were diagnosed in 114 participants (34.8%) in CP1, 61 (45.9%) in CP2, and 37 (54.4%) in CP3 ($P = 0.003$). Sensitivity analysis using KMC confirmed these findings.

Conclusions: MSM with HIV can be categorized into distinct CPs with varying risk levels for ARHCV and STIs. These findings can inform more targeted prevention, screening, and intervention strategies for HCV and STIs in this population.