**Epidemiological Characteristics of Genotypic Drug Resistance in Acquired and Transmissible HIV in Henan, China**

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**ABSTRACT** (250-300 words)

**Background**: The WHO states that drug resistance mutations (DRMs) are a significant obstacle to ART. DRMs can be transmitted by people living with HIV/AIDS (PLWHA) who carry these mutations, or they can be acquired during ART. Both transmitted-DRMs (TDRMs) and acquired-DRMs (ADRMs) increase the risk of ART failure and continued HIV transmission.

**Objective:** To examine genotypic drug resistance on PLWHAs in Henan, China, before and after treatment to analyze the epidemiological characteristics of HIV drug resistance in the region.

**Methods:** Data were drawn from the January 2018 to February 2023 in Henan, China, which included PLWHAs who had received ART for at least 6 months and had a viral load of at least 1000 copies/ml. Genotypic drug resistance testing for HIV-1 was conducted using the in-house method.

**Results:** In total, the successful amplification rate were 98.76%(637/645) in clinical patients with a transmitted resistance rate of 11.93% (76/637). There was a successful amplification rate of 91.54% (812/887) in ART failures and an acquired resistance rate of 83.25% (676/812). Subtype analysis revealed that the three most prevalent subtypes in disseminated resistance were CRF07\_BC (41.76%, 266/637), CRF01\_AE (28.26%, 180/637), and B (20.41%, 130/637). The subtype B had the highest acquired resistance prevalence at 59.61% (484/812). Resistance rates of different genetic subtypes were statistically significant (χ²=27.447, P<0.05; χ²=21.33, P=0.001). In particular, the K103S/N (3.77%, 24/637), M184I/V (3.14%, 20/637) mutations were the most frequent. The mutations most frequently observed in acquired resistance were M184V/I (63.42%, 515/812),and K103N/S (34.98%, 284/812).

**Conclusion:** Drug resistance among PLWHAs in Henan is alarming, especially NRTI and NNRTI resistance, and drug resistance mutations have become more diverse and complex. To address the issue of drug-drug resistance, interventions include adherence education, improved treatment strategies, selection of high-resistance barrier drugs, and increased monitoring of viral load and resistance before and after ART.

**BIOGRAPHY** (100-150 words)

Chen Zhaoyun achieved a bachelor's degree in medicine from Henan Medical University and achieved a master's degree in public health from the Chinese Center for Disease Control and Prevention. For 30 years, he has focused on preventing and treating various infectious diseases, as well as diagnosing and treating AIDS and liver diseases. She has published over 50 academic papers and received two scientific and technological progress awards at the provincial and ministerial levels. For 30 years, she has focused on preventing, investigating, diagnosing, and treating various infectious diseases, with a specialization in AIDS, liver disease, and other infectious diseases.

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