

From Fibrosis to Follow-Up: Clinical Predictors and Programmatic Challenges in Hepatitis C Care.

Authors:

Banerjee A^{1,2}, Kumar V^{1,2}, Khargekar N^{1,2}, Athalye S¹, Warang P¹, Chandnani S³, Taklikar S⁴.

1 Department of Transfusion Transmitted Diseases, ICMR-National Institute for Research in Blood and Immune Disorders (NIRBID), formerly National Institute of Immunohaematology (NIIH), Mumbai, India.

2. Academy of Scientific and Innovative Research (AcSIR), Ghaziabad, India

3. Department of Gastroenterology, Lokmanya Tilak Municipal Medical College and General Hospital (LTMGH), Mumbai, India

4. Department of Microbiology, Lokmanya Tilak Municipal Medical College and General Hospital (LTMGH), Mumbai, India

Background:

Chronic hepatitis C virus (HCV) infection remains a major public health concern owing to high risk of progression to liver fibrosis, cirrhosis, and hepatocellular carcinoma, while programme implementation challenges may hinder timely diagnosis, treatment, and continuity of care. This study aimed to identify factors associated with advanced liver fibrosis among chronic HCV patients and explore operational barriers in hepatitis care delivery under the National Viral Hepatitis Control Programme (NVHCP) in Western India.

Methods:

A mixed-methods observational study was conducted among 80 adults with chronic HCV infection attending tertiary care gastroenterology clinics in Western India (January 2025 to March 2026). Clinical, laboratory, and radiological data were retrieved from available records, and liver fibrosis was assessed using transient elastography. Qualitative data from interviews and focus group discussions with healthcare providers and patients were thematically analysed to identify implementation barriers.

Results:

The cohort had a mean age of 42.1 ± 12.9 years and mean BMI of 23.7 ± 4.5 kg/m², with males comprising 53.3%. Advanced fibrosis was observed in 22.7% of chronic HCV patients. Diabetes, CKD, alcohol use, intravenous drug use, and HIV coinfection were notable comorbidities and risk factors. Higher GGT ($\rho = 0.248$, $p = 0.032$) and IgG levels ($\rho = 0.230$, $p = 0.047$) showed weak but significant positive correlations with fibrosis severity. HALP demonstrated a weak positive correlation with LSM. Qualitative findings identified barriers including poor awareness, stigma, workforce limitations, drug interruptions, logistical challenges, inadequate counselling, and weak programme coordination.

Conclusion:

Both clinical and health-system factors contribute to disease progression and gaps in hepatitis C care. Early diagnosis, timely antiviral treatment, management of modifiable risk factors, and strengthened programme implementation are essential to improve outcomes and support hepatitis elimination goals. Decentralized diagnostics, workforce training, digital tracking, and community awareness may further enhance retention and programme effectiveness.

Disclosure of Interest Statement:

The authors declare no conflicts of interest related to this work. The authors acknowledge the contribution of patients, participating healthcare institutions and programme staff involved in hepatitis care delivery and data collection.