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Missed Opportunities for Cure: Clinical Profile and Absence of Curative Antiviral Therapy Among Hospitalised Patients with Chronic Hepatitis C in Peshawar, Pakistan

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Abstract

Background: Direct-acting antivirals (DAAs) cure more than 95% of hepatitis C virus (HCV) infections, yet only about one-fifth of infected people worldwide have been treated. Pakistan carries the largest national HCV burden. Whether admitted HCV patients are being reached by curative therapy is a critical question for elimination.Objective: To describe the clinical and biochemical profile of patients hospitalised with

chronic hepatitis C at a tertiary centre in Peshawar and to determine the proportion receiving curative antiviral therapy.Methods: A cross-sectional, records-based study of 20 consecutive adults admitted with confirmed chronic HCV to the gastroenterology ward of Lady Reading Hospital, Peshawar, over 45 days. Presenting features, comorbidities, laboratory values and all prescribed medicines were recorded. The primary outcome was the proportion receiving a direct-acting antiviral. Proportions are reported with 95% confidence intervals (CIs). Results: The cohort (11 men, 9 women; most aged 51–60 years) presented overwhelmingly with the complications of decompensated cirrhosis: vomiting, abdominal pain, ascites and features of hepatic encephalopathy. Management was accordingly supportive—lactulose, rifaximin, spironolactone with furosemide and empirical third-generation cephalosporins—and one patient with hepatocellular carcinoma received sorafenib. Alanine aminotransferase was elevated in all patients measured (range 88–175 U/L), hyponatremia (<135 mmol/L) was present in 9 of 14 (64%) and thrombocytopenia in 7 of 17 (41%). Critically, no patient (0/20; 0%, 95% CI 0.0–16.1) was receiving or commenced on a curative direct-acting antiviral during admission. Conclusion: These patients reached hospital only after progression to decompensated, complication-laden disease, and none received curative antiviral therapy—an avoidable late presentation that epitomises the treatment gap Pakistan must close to meet the World Health Organization's 2030 elimination target. Earlier screening, linkage to care and integration of DAA therapy into hospital pathways are urgently needed.

Keywords: Hepatitis C, Chronic; Antiviral Agents; Liver Cirrhosis; Health Services Accessibility; Disease Elimination; Pakistan.

INTRODUCTION

The advent of pan-genotypic direct-acting antivirals (DAAs) has transformed hepatitis C from a chronic, progressive infection into a curable disease, with a short oral course achieving cure in more than 95% of patients.[1] On this basis the World Health Assembly resolved to eliminate viral hepatitis as a public health threat by 2030, targeting a 90% reduction in new

chronic HCV infections, a 65% reduction in HCV mortality, diagnosis of 90% of those infected and treatment of 80% of eligible patients.[1,2] Yet access remains the binding constraint: only about one-fifth of people with hepatitis C have been treated since curative therapy became available, and in 2024 the infection still caused an estimated 239,000 deaths, chiefly from cirrhosis and hepatocellular carcinoma.[1,3]

Nowhere is this gap more consequential than in Pakistan, which now carries the world's largest national HCV burden—around ten million people living with the infection—and which is among the ten countries responsible for most HCV deaths globally.[3,4] Prevalence is especially high in Khyber Pakhtunkhwa, and only a quarter to a third of infected Pakistanis are even aware of their status.[4,5] In response, the government launched the Prime Minister's National Programme for the Elimination of Hepatitis C in 2024, aiming to test a large share of the population and treat millions before 2027.[4,5] The success of this programme depends on reaching patients before irreversible liver damage occurs and on ensuring that those who do reach health facilities are linked to curative therapy.[6]

Against this backdrop, the treatment status of patients who are actually admitted to hospital with chronic HCV is a revealing but rarely reported indicator. This study describes the clinical and biochemical profile of such patients at a tertiary centre in Peshawar and asks a simple, elimination-relevant question: how many were receiving curative antiviral therapy?

METHODS

Design, setting and participants

This single-centre, cross-sectional, records-based observational study followed the STROBE statement. Over a 45-day period, 20 consecutive adults admitted with confirmed chronic hepatitis C to the gastroenterology ward of Lady Reading Hospital, Peshawar, were reviewed. Patients without confirmed hepatitis C were excluded.

Data collection and outcomes

A structured proforma captured demographic details, presenting complaints, comorbidities, laboratory investigations and all prescribed medicines (generic name, dose, frequency, route

and duration). The primary outcome was the proportion of patients receiving a curative direct-acting antiviral during admission. Secondary descriptors were the pattern of presenting complications, the classes of supportive medication used, and the biochemical and haematological profile.

Statistical analysis

Categorical variables are summarised as frequencies and percentages, with 95% confidence intervals for key proportions calculated by the Wilson score method. Laboratory abnormalities were defined against local reference ranges and summarised among patients in whom the test was recorded. No inferential testing was undertaken.

RESULTS

The 20 patients (11 men, 9 women) were predominantly middle-aged to elderly, with most aged 51–60 years; the demographic distribution is summarised in Table 1. Presenting features were those of advanced, decompensated liver disease (Table 2): vomiting, abdominal pain and distension, loss of appetite, fever and, in several patients, shortness of breath and features suggestive of hepatic encephalopathy. Diabetes mellitus and hypertension were the commonest comorbidities, and one patient had hepatocellular carcinoma.

Table 1. Demographic characteristics of the cohort (n = 20).

Characteristic	Category	N	%
Sex	Male	11	55.0
	Female	9	45.0
Age group (years)	21–30	2	10.0
	31–40	3	15.0
	41–50	3	15.0
	51–60	7	35.0
	61–70	5	25.0

Table 2. Predominant presenting features and management categories (n = 20).

Domain	Observation
Common presenting complaints	Vomiting, abdominal pain/distension, loss of appetite, fever, shortness of breath
Complications of decompensation	Ascites, features of hepatic encephalopathy, gastrointestinal bleeding (selected patients)
Encephalopathy management	Lactulose and rifaximin (non-absorbable disaccharide plus non-absorbable antibiotic)
Ascites management	Spironolactone plus furosemide (dual-diuretic regimen)
Empirical antibiotics	Third-generation cephalosporins (ceftriaxone, cefoperazone–sulbactam)
Hepatocellular carcinoma	Sorafenib (1 patient)
Curative antiviral (DAA) therapy	None (0 patients)

DAA, direct-acting antiviral. Management was supportive and directed at complications; no curative antiviral therapy was prescribed.

The biochemical and haematological profile reinforced the picture of advanced liver disease (Table 3). Alanine aminotransferase was elevated above the upper reference limit in every patient in whom it was measured (range 88–175 U/L). Hyponatraemia, a marker of advanced cirrhosis and poor prognosis, was present in 9 of 14 patients measured (64%), and thrombocytopenia—reflecting portal hypertension and hypersplenism—in 7 of 17 (41%). Anaemia was common, whereas serum creatinine was largely preserved, indicating that overt hepatorenal dysfunction was not yet established in most patients.

Table 3. Selected laboratory abnormalities (among patients in whom measured).

Parameter	Definition of abnormality	n abnormal / n measured	%
Alanine aminotransferase	> 40 U/L	17 / 17	100
Serum sodium	< 135 mmol/L (hyponatraemia)	9 / 14	64
Platelet count	< 150 × 10^9/L (thrombocytopenia)	7 / 17	41

Parameter	Definition of abnormality	n abnormal / n measured	%
Haemoglobin	< 12 g/dL (anaemia)	9 / 18	50
Serum creatinine	> 1.3 mg/dL	0 / 17	0

Values derived from available case-level laboratory data using local reference ranges; denominators vary because not every test was recorded for every patient. Ranges: alanine aminotransferase 88–175 U/L; haemoglobin 7.3–14.5 g/dL.

The central finding is unambiguous: none of the 20 patients (0%, 95% CI 0.0–16.1) was receiving, or was started on, a curative direct-acting antiviral during admission, despite all having confirmed chronic hepatitis C. Every regimen was directed at the complications of end-stage liver disease rather than at eradicating the underlying infection.

DISCUSSION

This study yields a stark and clinically important observation. Among 20 patients admitted to a tertiary centre with chronic hepatitis C in the province with one of Pakistan's highest prevalences, not a single patient was receiving curative antiviral therapy, and all were being managed for the complications of decompensated cirrhosis. These patients embody the treatment gap that stands between Pakistan and the World Health Organization's 2030 elimination target.

The clinical and biochemical profile—universal transaminase elevation, frequent hyponatraemia and thrombocytopenia, ascites and encephalopathy—indicates that these patients presented late, only once portal hypertension and hepatic decompensation had developed.[7] At that stage, supportive care with lactulose and rifaximin for encephalopathy, dual diuretics for ascites, and empirical third-generation cephalosporins for suspected infection is entirely appropriate and guideline-concordant.[5,6,7] The problem is not what was prescribed but what was missing. Direct-acting antivirals cure more than 95% of infections and, even in compensated cirrhosis, reduce the risks of decompensation, hepatocellular carcinoma and death; their complete absence from these regimens represents a missed opportunity at the very point of maximal contact with the health system.[1]

Several factors plausibly underlie this gap. Only a quarter to a third of infected Pakistanis are aware of their diagnosis, so many present for the first time with advanced disease; DAAs have historically been delivered through vertical programmes and specialist clinics rather than integrated into inpatient hepatology pathways; and decompensated cirrhosis itself complicates regimen selection and timing.[4,5,6] Yet the admission of a patient with known chronic HCV is precisely the moment to test, stage and link to—or initiate—curative therapy. The contrast with Egypt, which moved from one of the world's highest HCV burdens to near-elimination through mass screening and treatment, shows what is achievable when diagnosis is coupled to immediate treatment.[4]

The findings therefore carry a concrete policy and practice message that aligns with the Prime Minister's National Programme for the Elimination of Hepatitis C.[4,5] Hospital admission should trigger a structured pathway: confirm viraemia, assess fibrosis and comorbidity, and either initiate a pan-genotypic DAA regimen or ensure rapid, documented linkage to a treatment centre before discharge. Embedding this pathway—supported by clinical pharmacists and simple checklists—would convert episodic, complication-driven admissions into opportunities for cure and would directly advance the national elimination effort.

Strengths and limitations

The study's strength is that it captures a simple, elimination-relevant indicator—curative treatment coverage at the point of admission—that is rarely reported for inpatients. Its limitations are the small, single-centre sample (n = 20) over a short period, which precludes generalisation and yields wide confidence intervals; the records-based design, which may under-capture outpatient DAA use initiated elsewhere; and the absence of fibrosis staging, genotype and follow-up data. Larger, multicentre studies measuring DAA coverage and linkage-to-care among admitted HCV patients would strengthen and extend these observations.

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CONCLUSION

Patients admitted with chronic hepatitis C to this tertiary centre presented late, with decompensated cirrhosis and its complications, and none received curative antiviral therapy. In the country with the world's largest hepatitis C burden, this avoidable treatment gap at the point of hospital contact undermines elimination efforts. Systematically coupling admission to diagnosis, staging and direct-acting antiviral therapy—or documented linkage to care—is an achievable, high-impact intervention.

RECOMMENDATIONS

- Clinical: for every admitted patient with chronic hepatitis C, confirm viraemia, stage fibrosis, and initiate or arrange documented linkage to pan-genotypic direct-acting antiviral therapy before discharge.
- Hospital: implement an inpatient HCV care pathway with a discharge checklist ensuring treatment initiation or referral.
- Policy: integrate direct-acting antiviral access into hospital services under the Prime Minister's National Programme, rather than relying solely on vertical clinics.
- Public health: strengthen earlier community screening and linkage to care to reduce late, decompensated presentations.
- Research: measure DAA treatment coverage and linkage-to-care among admitted HCV patients in multicentre studies.

DECLARATIONS

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