Understanding Patient Experiences with Chronic Hepatitis B Virus and its Treatments

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Background

- Chronic hepatitis B (CHB) infection is an important public health concern because of its worldwide distribution and potential for severe complications that can lead to liver cirrhosis, hepatocellular carcinoma, or death[1,2]

- Despite advances in the treatment of CHB, unmet treatment needs remain. Novel therapeutic approaches to address these unmet needs are currently in clinical development

- To support a patient-centric approach to drug development, this qualitative study was conducted to better understand patients' experiences with CHB, the impact of treatments for CHB, perceptions of important treatment attributes, and perceptions and perceived value of a functional cure

Methods

Study Design and Patients

- This cross-sectional qualitative study included 28 patients from a proprietary database of patients with CHB, support groups, and social media advertising

- Patients were aged ≥18 years; diagnosed with CHB for ≥6 months; had no other viral coinfections with hepatitis C, hepatitis D, or human immunodeficiency virus; and had current or past experience with interferon-alpha (IFN-α) and/or nucleos(t)ide analogue (NA) or were treatment naive

Procedures

- Individual telephone interviews were conducted between March and April 2020

- Each interview lasted approximately 60 minutes and was conducted by 2 trained independent researchers with extensive experience in qualitative research

- Two semistructured interview guides were used: 1 for patients who had experience with treatment and 1 for treatment-naive patients

- All interviews were audio recorded and transcribed verbatim for analysis

Analysis

- Analysis was completed using a thematic analysis

- Immediately following the interviews, the researchers debriefed, recorded initial thoughts from the interviews, discussed key concepts and themes, and conducted an in-depth analysis of the interviews and responses received using field notes and interview transcripts

Results

Patient Characteristics

- Patient characteristics at screening are presented in **Table 1** and show an overall mean age of 47.5 years; ages ranged from 23 to 70 years

- There were slightly more males than females, and the sample was racially and ethnically diverse (ie, 50% were nonwhite)

- Most patients had some form of health insurance with prescription drug coverage and were married or living with a partner, college-educated, and employed full or part time

Table 1. Patient Characteristics at Screening

Characteristic	Total N = 28
Age, mean (SD)	47.5 (10.3)
Sex, n (%)	
Male	15 (53.6)
Female	13 (46.4)
Race/ethnicity[a], n (%)	
White	14 (50.0)
Black/African American	7 (25.0)
Asian	5 (17.9)
Hispanic or Latino	3 (10.7)
Marital status, n (%)	
Single	9 (32.1)
Married	14 (50.0)
Living with partner	4 (14.3)
Divorced or separated	1 (3.6)
Education, n (%)	
Some college (no degree)	4 (14.3)
College degree	18 (64.3)
Advanced degree	6 (21.4)
Employment status, n (%)	
Employed full-time	21 (75.0)
Employed part-time	5 (17.9)
Retired or disabled	2 (7.2)
Health insurance, n (%)	
Private insurance (eg, HMO, PPO)	22 (78.6)
Medicare or Medicare Advantage	2 (7.1)
Medicaid	2 (7.1)
None	2 (7.1)
Prescription drug coverage, n (%)	
Yes, completely	19 (67.9)
Yes, partially	5 (17.9)
No or only generic treatments	4 (14.3)

HMO, health maintenance organization; PPO, preferred provider organization.
[a]One patient selected both "White" and "Hispanic or Latino," so the total exceeds 100%.

- **Table 2** presents the patient-reported treatment experience at screening

- Of the 23 patients who self-reported as treatment-experienced, 75% reported current or past experience with NAs only, 29% with IFN-α only, and 21% with both IFN-α and NAs

- Among the treatment-experienced patients, 91% started treatment within 6 months of diagnosis; 9% delayed treatment due to fear, low viral-load levels, or other medical conditions

- Treatment-naive patients cited the following reasons for not starting treatment at diagnosis: low viral-load levels, CHB was manageable without treatment, or no treatments were available at the time of diagnosis

Table 2. Treatment Experience Reported at Screening

Treatment Experience[a]	Total N = 28
Current or past treatment, n (%)	23 (82.1)
NA	21 (75.0)
IFN-α	8 (28.6)
IFN-α and NA	6 (21.4)
No treatment, n (%)	5 (17.9)

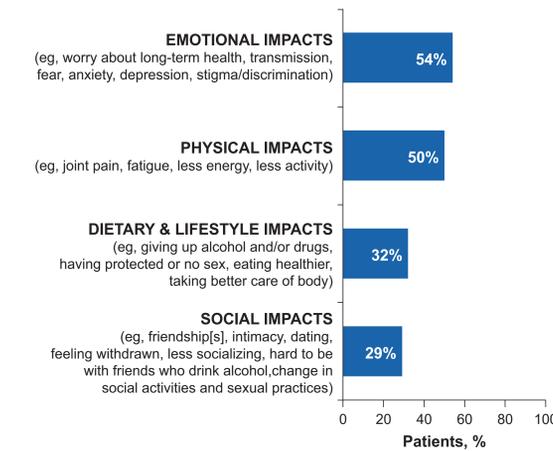| Treatment Type Among Treated Patients	Total N = 23
Oral treatments, n (%)	
Lamivudine	7 (30.4)
Adefovir dipivoxil	3 (13.0)
Entecavir	2 (8.7)
Tenofovir disoproxil fumarate	6 (26.1)
Tenofovir alafenamide	4 (17.4)
IFN-α (injectable) treatments, n (%)	
IFN-α-2b	3 (13.0)
PegIFN-α-2a	5 (21.7)

IFN-α, interferon-alpha; NA, nucleos(t)ide or nucleos(t)ide analog; PegIFN, pegylated interferon.
The data represent information that patients provided at the time they were screened. The counts and percentages are based on current and past use, and some patients reported experience with multiple treatments.
[a]Totals exceed 100% because multiple responses were allowed.

Symptoms Prompting Patients to Seek Medical Attention at Initial Diagnosis
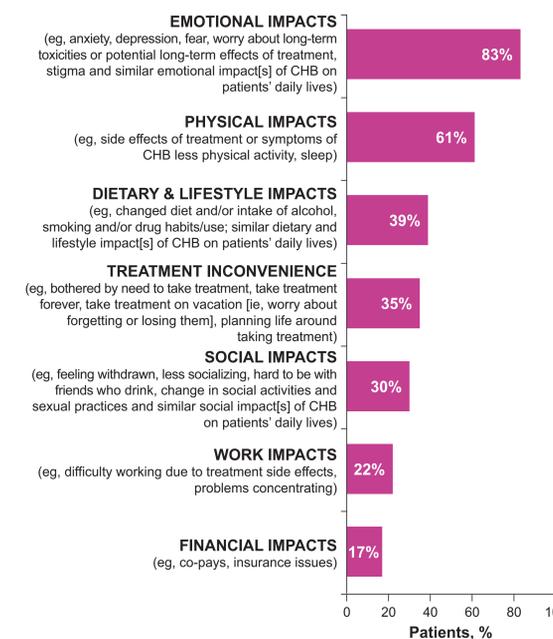
- 50% of all patients had symptoms that prompted them to seek medical attention

  – The most frequently reported symptoms were fatigue (64%) and abdominal pain (36%); 21% of patients indicated skin discoloration or weight gain/loss or flu-like symptoms

- The remaining 50% of patients reported no symptoms related to their CHB or CHB treatment, and were diagnosed as a result of routine lab work, potential exposure, or family history of CHB

Figure 1. Impact of CHB on Patients' Daily Lives

EMOTIONAL IMPACTS (eg, worry about long-term health, transmission, fear, anxiety, depression, stigma/discrimination) — 54%
PHYSICAL IMPACTS (eg, joint pain, fatigue, less energy, less activity) — 50%
DIETARY & LIFESTYLE IMPACTS (eg, giving up alcohol and/or drugs, having protected or no sex, eating healthier, taking better care of body) — 32%
SOCIAL IMPACTS (eg, friendship[s], intimacy, dating, feeling withdrawn, less socializing, hard to be with friends who drink alcohol, change in social activities and sexual practices) — 29%
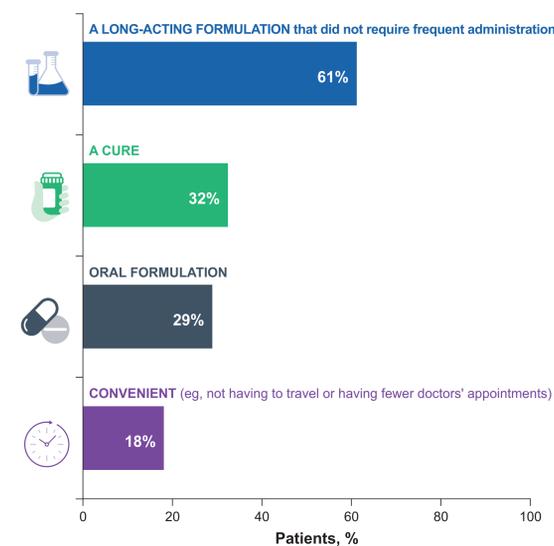
Patients, %

- All patients reported impacts on their daily lives (**Figure 1**). Emotional impact, including stigma/discrimination, was most frequently reported (54%), followed by physical impact (50%), dietary and lifestyle impact (32%), and social impact (29%)

Figure 2. Impact of CHB Treatments on Patients' Daily Lives

EMOTIONAL IMPACTS (eg, anxiety, depression, fear, worry about long-term toxicities or potential long-term effects of treatment, stigma and similar emotional impact[s] of CHB on patients' daily lives) — 83%
PHYSICAL IMPACTS (eg, side effects of treatment or symptoms of CHB less physical activity, sleep) — 61%
DIETARY & LIFESTYLE IMPACTS (eg, changed diet and/or intake of alcohol, smoking and/or drug habits/use; similar dietary and lifestyle impact[s] of CHB on patients' daily lives) — 39%
TREATMENT INCONVENIENCE (eg, bothered by need to take treatment, take treatment forever, take treatment on vacation [ie, worry about forgetting or losing them], planning life around taking treatment) — 35%
SOCIAL IMPACTS (eg, feeling withdrawn, less socializing, hard to be with friends who drink, change in social activities and sexual practices and similar social impact[s] of CHB on patients' daily lives) — 30%
WORK IMPACTS (eg, difficulty working due to treatment side effects, problems concentrating) — 22%
FINANCIAL IMPACTS (eg, co-pays, insurance issues) — 17%

Patients, %

- Although many treatment-experienced patients had difficulty differentiating the impacts of CHB treatment from the disease itself, nearly all (91%) reported negative impacts associated with treatment (**Figure 2**)

Figure 3. Most Frequently Reported Features of an Ideal CHB Treatment

A LONG-ACTING FORMULATION that did not require frequent administrations — 61%
A CURE — 32%
ORAL FORMULATION — 29%
CONVENIENT (eg, not having to travel or having fewer doctors' appointments) — 18%

Patients, %

- When patients were asked for the attributes of an ideal treatment, they spontaneously reported a long-acting formulation with less frequent administration (61%), a cure (32%), an oral formulation (29%), or a convenient treatment that did not require travel (18%) (**Figure 3**)

Patient Perception of a Functional Cure

- 54% of patients described a functional cure as a partial, temporary, and/or incomplete cure that worked to some extent and that was associated with fewer or better-controlled symptoms, but that was not a full or permanent cure

- Regardless of how patients defined functional cure, nearly all found it appealing when a functional cure was described to them as one that "aims to restore an individual's immune and liver function, allowing you to safely stop all treatments and prevent serious liver diseases (eg, liver failure, liver cancer)"

Figure 4. Patient Quotes

A LONG-ACTING FORMULATION
Like I said, I'd probably go with something that's convenient. Whether it'd be pill or injection, I think. If it's something that would be not so much a one… I was going to say a one-and-done thing, but something that will last long-term.

But in an ideal world I would love to see some kind of long-acting formulation.

I think definitely, probably being able to lessen it from maybe 3 times a week to once. Just do something, make it more potent or something to just make it not have to come in as often.

PHYSICAL IMPACTS
Just the day-to-day activities. So like I said, when the symptoms show themselves, it affects your day-to-day everything.

A CURE
Well, obviously, if there's a cure for it, that would be great. If they said, we have a stronger dosage, and you take it x amount of times for maybe 6 months and you're cured, I'd be like "Yeah, that's great."

EMOTIONAL IMPACTS
Just the emotional toll of having it… it's like a… silent killer.

I guess more emotional. I think things are sometimes psychosomatic, you might talk yourself into feeling like you're not going to have a good day, like self-pity.

SOCIAL IMPACTS
I would say I think social relationships, friends, some people I've known since high school and I've just kind of withdrawn from some of them because they're just… I see them in a different way now that I've been diagnosed.

Limitations

- Although most patients were currently receiving treatment, a small number retrospectively recalled their past experiences with treatment; these answers may be subject to recall bias

- The small number of patients who took part in the study may limit the generalizability of the findings

Conclusions

- CHB and its treatments have a significant impact on patients' lives, especially emotionally, physically, and socially

- Patients reported unmet needs with treatment for CHB, and they deemed the ideal treatment to include a long-acting formulation with less frequent administration and one that is curative and delivered in an oral formulation

- Although "functional cure" is not a well-understood term to most patients, most would likely welcome a treatment of finite duration that provides lifelong control of CHB

References: 1. World Health Organization. Published July 27, 2020. Accessed April 21, 2021. https://www.who.int/en/news-room/fact-sheets/detail/hepatitis-b. **2.** Terrault NA et al. *Hepatology.* 2018;67:1560-1599