

# Management of Hepatitis C in Psychiatric Settings: Review of The Literature and Review of Experiences Over 4 Years in A Psychiatric Hospital

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## ABSTRACT

**Introduction:** Hepatitis C is a more common infection in the psychiatric population and psychiatric comorbidities are more common in patients with chronic viral hepatitis C. No prospective studies on hepatitis C management in a psychiatric setting in France had not been yet published.

**Objectives:** 1/ to make a short review of the literature 2/ To determine the prevalence of HCV in the psychiatric inpatient population, to assess the feasibility of the simplified care pathway recommended by HAS and to improve the screening and management of hepatitis C in closed psychiatric settings.

**Methods:** Collecting prospective and retrospective data on the management of hepatitis C from 2017 to 2020 among the psychiatric hospital's incoming population.

**Results:** Current data on the prevalence and management of hepatitis C in psychiatric settings are insufficient. In our study, the number of serologies performed among entrants increased from 2016 to 2020 with coverage of screening from 24% to 100%. In 2020, a C viral load was achieved in all patients with positive C serology. All patients with a positive viral load were assessed for fibrosis with FIBROSCAN on-site and treated with direct antivirals except 2.

**Conclusion:** our original approach to HCV has been efficient. This cooperation between organized caregivers (hepatology mobile team and medical biology laboratory) has increased rate of screening and management of HCV in psychiatric hospitals. Hospitalization and/or psychiatric follow-up is a risk factor for hepatitis C and should lead to hepatitis screening. Larger prospective studies are needed.

## Keywords

Hepatitis C, Screening, Psychiatric hospital, Cascade of care.

## Introduction

Hepatitis C is and remains a public health issue. Although the national public health plan has set the eradication of hepatitis C in France in 2025 [1], this objective can only be achieved by screening and/or bringing all patients who have been in contact with the hepatitis C virus (HCV) back to health care. The recommendations for management have been well codified and a simplified path proposed by French National Authority of Health (HAS) [2-4].

Liver biopsy is no longer necessary for the diagnosis of liver fibrosis which can be performed by blood tests (FIBROTEST\*/FIBROMETER\*) or physical (FIBROSCAN\*). All patients with a positive C viral load should be able to be offered direct antiviral treatment of 8 or 12 weeks with efficacy greater than 95% cure and limited adverse effects. The eradication of hepatitis C virus (HCV) is a major issue in the coming years. To reach this target set by the WHO in 2030 and by France in 2025, it is essential to detect and treat populations with a high prevalence of HCV infection. It also involves promoting the screening and assessment of fibrosis by simple and available means everywhere.

Psychiatric patients constitute a population with an increased prevalence, although the literature remains sparse and French data are limited [5-9]. Conversely, psychiatric illnesses are more frequent in the population of patients with or who had chronic viral hepatitis C. Already in the French experts' report published in 2014 and updated in 2016 [3], specific recommendations were made on the management of psychiatric patients, including the proposed routine screening for viral hepatitis (Figure 1). But between recommendations and practices, what was the reality on the ground and the possibilities for improvement? It is this situation and after detailing the existing literature that our team wanted to study as part of a dedicated action in a local psychiatric hospital.

French experts' rapport recommendations Chapitre 13 [2].
1. Sensitize general practitioners and psychiatrists to the problem of hepatitis B and C, because of the frequency of psychiatric manifestations during viral infections B and C.
2. Promote and develop the screening of viral hepatitis B and C in patients attending psychiatric facilities and users of psychoactive substances.
3. Encourage and promote vaccination against hepatitis B in patients attending psychiatric facilities and users of psychoactive substances.
4. Systematize and standardize assessment procedures for psychiatric disorders, addiction problems and suicidal risks before, during and after antiviral treatment including interferon, particularly in hepatitis C patients.
5. Update the therapeutic recommendations of the AFSSAPS (current ANSM), including the risk factors of thymic disorders (sleep disorders, stressful events, low support environment).
6. Improve the coordination of care by developing and promoting coherent articulations between general practitioners, hepatologists, psychiatrists and addictologists.
7. Support patient associations and develop listening platforms regulated by mental health professionals.
8. Support research on mechanisms of psychiatric and cognitive disorders in hepatitis C patients.

**Figure 1:** Recommendations for management of hepatitis C in psychiatric patients (based on 3).

## Overview of literature in France and the world

### Ancient series from the time of interferon

Hepatitis C is more common in the psychiatric population and psychiatric comorbidities are common in patients with chronic viral hepatitis C with an established link to past or current drug use, according to the latest French studies [10]. Depending on the geographical area (Table 1), the prevalence of HCV varies from 3% in South America to 17% in North America [9], but the data remain old. Europe is in a low range at 4.9%. Table 2 summarizes old series where the prevalence of HCV varied from 6% in France to 30% in the United States.

HCV has a certain neurological tropism with intracerebral viral replication, which constitutes an extra hepatic manifestation by direct neurotoxicity of HCV but also alteration of the neurotransmission pathways, metabolic disorders, and neuronal inflammation [6]. Pre-existing psychiatric conditions were

exacerbated by HCV but also by antiviral treatment when it was based on the use of interferon alpha, a molecule with a depressing effect [7]. A link has even been mentioned between HCV infection and Parkinson's disease [8].

**Table 1:** HCV prevalence in different continents [9].

Country	Number of studies	HCV prevalence
North America	13	17.4%
Europe	6	4.9%
Australia	1	3.1%
Africa	0	Na
Asia	7	4.4%
Central and South America	2	3%

**Table 2:** HCV prevalence in different countries [9].

Author	N	Country	Period	HCV prevalence (%)
Rosenberg et al (2001)	931	USA	June 1997 to December 1998	19.6
Pirl et al (2005)	548	USA	January 1997 to December 1998	18
Eveillard et al (1999)	327	France	January 1995 to December 1996	6
Kakisi et al (2009)	415	Greece	May 2005 to April 2006	9
Tabibian et al (2008)	129	USA	December 2002 to March 2003	38
Matthews et al (2008)	5026 Patients bipolaires	USA	January 1998 to December 2004	
Lacey et al (2007)	84	Australie	August 2002 to January 2003	19.4

### Recent data confirms link between HCV, addiction, and psychiatry

More recently, a meta-analysis published in 2019 [18] looked at the links between HCV and schizophrenia. In the 21 studies selected, totaling 1159 hospitalized patients in the United States, the odd ratio was 3.29 and the overall prevalence was 6%. For hepatitis B, the odd ratio was 2 with a prevalence of 7%. Conversely, the prevalence of psychiatric illnesses in patients with hepatitis C is high: 40% for depression, 20% for anxiety, more than 5% for bipolar disorders and schizophrenia. Addictions such as excessive alcohol consumption or drug use are also higher, up to 50%, compared to the general population.

A study was reported only at the conference in 2019 [19] covering a 16-month period and comparing 1,049 patients hospitalized in psychiatry and 2,877 patients hospitalized in Internal Medicine at a hospital in Virginia. All patients had been screened for HCV. In this group of patients, 50% of psychiatric patients were under 35 years of age (hospitalization for addiction, psychosis, suicide attempt), 30% were 35-60 years of age (alcohol, depression) and 20% were over 60 years of age (hospitalization for dementia, cognitive impairment, or depression) The management rate of

viral infection C was 63% for psychiatric patients and 84% for hospitalized patients in Internal Medicine.

HCV viral load was positive in 1.11% of patients in internal medicine and 7.08% in psychiatry. The French studies remain old or fragmentary, dating from the time of the use of interferon as a basic treatment of hepatitis C and period when a psychiatric pathology represented a counter-C. Very recently in a French congress [20], a Nancy team reported its experience in a psychiatric hospital qualified as rural. Four hundred and seven patients were screened and 17 had positive serology (4.2%); 9 had a positive viral load (2.2%). Contamination was linked to drug use in 16 out of 17 patients. Mean FIB4 score was 1.23 and only 2 patients with a high score (> 2.4) with advanced fibrosis. No FIBROSCAN was performed. Four out of nine patients were treated; the referring physicians of the patients were contacted secondarily to perform the treatment. Furthermore, there was no data in the literature on the large-scale use of FIBROSCAN in psychiatric settings. All these data show a strong link between psychiatry and hepatitis C but a difference in the management of psychiatric services compared to other hospital units, not corresponding to current recommendations of good practices.

### An innovative experience in a psychiatric hospital

Psychiatric hospital of Thuir (CHP) in the department of Pyrénées-Orientales serves a pool of 481,691 inhabitants and represents a place of life for many chronic psychiatric patients but also a potential place of screening. It includes 382 beds and the annual active queue 2020 is 878 hospitalized patients for 69,065 days of hospitalization (average length of stay 29.4 days). HIV HCV serologies had been routinely performed for several years but follow-up of positive serologies was not formally organized.

### Objectives of the study

Our objectives were to 1/ determine the prevalence of HCV (serology and viral load) in the population of incoming psychiatric hospital, to evaluate their mode of contamination, their score of fibrosis measured by FIBROSCAN, 2/ assess the feasibility of the simplified care pathway recommended by HAS 3/ improve screening and management of hepatitis C in closed psychiatric settings.

### Methodology

We have collected retrospectively for 2017 and prospectively from 2018 onwards the data of the screening carried out for all the entrants of the Psychiatric Hospital of Thuir, the virological and fibrosis data, the known or unknown character of the viral infection C, access to specialist and antiviral treatment, response to antiviral treatment C. Bioassays were performed on the HPC laboratory, including viral load C. Screening was not systematically proposed at entry in 2017, the starting point of our study. From January 2018, after prior oral training of nursing teams by nurses from the General Hospital Centre, the screening proposal was made systematically. A bi-monthly nursing staff at the General Reference Hospital was set up in 2018 to perform FIBROSCAN by a nurse instead of a doctor according to a validated delegation of duties protocol. A hepatologist physician also provided a consultation on the CHP

site twice a month. A partnership has been formalized with the CHP biology laboratory to achieve a viral load C systematically in case of serology C positive. For this, an information letter was sent by the medical biologist to the CHP doctor in charge of the patient, serology prescriber, psychiatrist or somaticien recalling the follow-up to be carried out, including the possibility of an on-site FIBROSCAN to assess liver fibrosis and specialized consultation. Minor, outpatient, and penitentiary patients were excluded from this study.

### Very satisfactory results for screening and measurement of fibrosis

The updated results as of December 31, 2020 are detailed in Table 3. The number of HCV serologies performed at HPC increased from 2016 to 2020 with coverage from 24% to 100%. The contamination was related exclusively to a history of injectable or nasal drug use. The achievement of C viral loads in positive serology followed the same improvement with in 2020, a C viral load carried out to all patients who had positive C serology. All patients with a positive viral load received on-site FIBROSCAN. With exception of one patient at the F3-F4 stage per year, all others had minimal or moderate hepatic fibrosis, with an average value of 6.4 Kpa. Patients with a positive C viral load were all offered an antiviral treatment that could be started with exception of 2 patients from the European Union without social rights. The treatment could be delivered during a permission or immediately upon discharge from full hospitalization, so as not to impact the pharmaceutical budget constrained by CHP, under the block grant scheme and not activity-based charging such as general or university hospitals.

**Table 3:** The updated results as of December 31, 2020

	2017	2018	2019	2020
number of patients	1474	1479	1434	878
prescribed serology	1008	1205	1347	1064
realized serology	879	1022	1028	1064
screening rate	59.6	69.1	71.7	100
HCV positive patients	30	26	29	52
new HCV patients	8 (0,91%)	9 (0,88%)	14 (1,36%)	8 (0,91%)
prescribed HCV viral load	37	22	23	16
charges virales réalisées	29	21	25	24
viral load rate	78.3	95.4	100	100
patients seen in consultation	12	9	14	8
negative HCV viral load	9	8	5	4
positive HCV viral load	3	1	7	4
FIBROSCAN F0-F1-F2	12	8	11	7
FIBROSCAN F3-F4	0	1	1	1
mise en traitement	3	1	5	4
complete SVR	3	1	5	3
waiting SVR	0	0	0	1*

### Discussion

An organized cooperation between caregivers (mobile team of hepatology and laboratory of medical biology) makes it possible to increase the rate of screening and management of HCV in psychiatric hospital. Improvement is needed to increase the number of patients treated and decrease the number of lost follow-up. Hospitalization and/or psychiatric follow-up is a risk factor

for hepatitis C and should lead to screening. Simplified support according to recommendations was possible. In our experience, our original and proactive approach to HCV in the psychiatric setting has been efficient. All patients with a positive C viral load were treated and screening coverage was increased. The continuation of our actions is necessary to increase the number of patients treated and decrease the number of people loss of follow-up. Regular use of FIBROSCAN brought more value to patients HCV cascade of care. The combination of a non-specific liver fibrosis screening advanced by a simple and free tool, FIB4, study in progress at our center since October 2020, will allow to manage all chronic liver diseases by screening earlier hepatic fibrosis, viral or not viral.

## Conclusion

Prevalence of hepatitis C in the psychiatric population is higher than in the general population. Hospitalization and/or psychiatric follow-up is a risk factor for hepatitis C and should lead to screening. The risky behavior that causes the contamination remains the use of drugs, even old and even limited in time. The simplified treatment path advocated by HAS is particularly suitable for psychiatric patients, but the cost of treatment remains an important limiting factor, particularly for long-term hospitalized patients who require a specific exemption, as in the case of persons detained since 2015, for inmates, which would increase the number of people on antiviral treatment and contribute to the eradication target set in 2025 for France.

## Take Home Messages

- Prevalence of hepatitis C is higher in the psychiatric population than in the general population.
- Contamination is generally related to past or current use of injectable or nasal drugs.
- Screening and diagnosis are possible in closed psychiatric settings but the limit remains the funding of direct antivirals on a limited hospital pharmaceutical budget.
- Specific financial support, such as that established for the treatment of prisoners, is essential.

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