

**Title:**

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**Authors:**

Carlos Alventosa Mateu, María Dolores Ocete Mochón, Juan José Urquijo Ponce, Mercedes Latorre Sánchez, Inmaculada Castelló Miralles, Miguel García Deltoro, Concepción Gimeno Cardona, Moisés Diago

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## Current characteristics of patients with hepatitis C virus: results from an automated alert system

Carlos Alventosa Mateu<sup>1</sup>

María Dolores Ocete Mochón<sup>2</sup>

Juan José Urquijo Ponce<sup>1</sup>

Mercedes Latorre Sánchez<sup>1</sup>

Inmaculada Castelló Mirallés<sup>1</sup>

Miguel García Deltoro<sup>3</sup>

Concepción Gimeno Cardona<sup>2</sup>

Moisés Diago<sup>1</sup>

<sup>1</sup>Hepatology Unit. Digestive Diseases Department. <sup>2</sup>Microbiology Department.

<sup>3</sup>Infectious Diseases Department. Consorcio Hospital General Universitario de Valencia (Spain).

Correspondence author: Carlos Alventosa Mateu Hepatology Unit. Digestive Diseases Department. Consorcio Hospital General Universitario de Valencia. Av. Tres Cruces Nº 2. CP 46014. Valencia (Spain).

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Dear Editor,

Hepatitis C virus (HCV) infection has ideal conditions for screening but requires simplified diagnostics and pathways to avoid patient loss in the circuit care (1). Alert

systems are proving to be useful to this end (2) and are also cost-effective (3). In our health department, which includes three addiction units and a penitentiary, we have had a fully automated alert system since March 2020. This system, upon a positive HCV antibody, measures core antigen and, if positive, sends an email to two specialists in HCV. They contact the patient and, in a single in-person hospital appointment, perform Fibroscan® and prescribe antiviral treatment.

Until November 2023, 359 new diagnoses were carried out, achieving sustained viral response in 66% (237/359). The results from the first two years (2020-2021) were published (4), highlighting that 25.4% (34/134) of eligible patients for treatment were not located or refused it. With the aims of evaluating whether this limitation persists and analyzing the current characteristics of diagnosed patients, we describe the results of the 2022-2023 period and compare them with the ones of the 2020-2021 period.

During the 2022-2023 period 188 HCV patients were diagnosed, mean age  $58.6 \pm 16.2$  years, 62.2% male sex and 81.9% Spanish nationals. 53.2% were diagnosed as outpatient, especially from Primary Care (30.2% of the total). 78.2% were unaware of the disease. At diagnosis, 30.8% had advanced grade fibrosis (F3-F4). 16.5% were not candidates for treatment due to advanced age and/or severe comorbidities. Finally, 75% of those diagnosed received antiviral treatment.

In Table 1, we compare both periods. Currently, an increase of cases unaware of the disease is observed; as well as diagnoses from Surgical Departments, possibly due to the inclusion of HCV screening in pre-anesthesia since January 2023 (5). In both periods, the rate of F3-F4 was relevant. The rate of patient non-candidate for treatment was similar in both groups. However, in 2022-2023, the rate of treatment rejection by the patient decreased and, therefore, the rate of treated patients increased, both significant ( $p < 0.05$ ).

Our system continues to identify a considerable number of new diagnoses, currently predominating patients unaware of the disease. The percentage of treated patients has increased, as the current rate of treatment rejection is anecdotal, suggesting that the results from the 2020-2021 period were probably influenced by the COVID-19 pandemic.

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Table 1: Characteristics and comparative analysis of HCV patients during the two periods.

Variable	Years		OR	p-value
	Years 2020-2021	2022-2023		
Number of patients	171	188		
Age (mean $\pm$ standard deviation)	59.6 $\pm$ 15.9	58.6 $\pm$ 16.2		0.58 <sup>1</sup>
Male sex	65.5% (112/171)	62.2% (117/188)	2.43	0.52
Spanish nationality	86% (147/171)	81.9% (154/188)	1.08	0.30
Coinfection with HIV	11.7% (20/171)	8% (15/188)	1.40	0.24
Inpatient diagnosis	42.1% (72/171)	46.8% (88/188)	0.80	0.37
Surgical Departments	12.9% (22/171)	23.9% (45/188)	0.14	0.07
COVID-19 Patients	11.7% (20/171)	4.3% (8/188)	6.89	0.09
Outpatient diagnosis	57.9% (99/171)	53.2% (100/188)	1.25	0.37
Primary Care	29.8% (51/171)	31.9% (60/188)	0.18	0.67
Penitentiary	12.3% (21/171)	11.7% (20/188)	4.23	0.62
Addiction Unit	8.2% (14/171)	3.7% (7/188)	3.24	0.72
Advanced fibrosis (F3-F4)	44.7% (46/103)	30.8% (41/133)	4.78	0.29
Predominant genotype	1 (64.5%; 69/107)	1 (69%; 80/116)	0.50	0.48
Unaware of HCV disease	56.7% (97/171)	78.2% (147/188)	0.05	<b>&lt; 0.001</b>
Previously treated HCV (of	35.1% (26/74)	17.1% (7/41)	4.21	<b>0.04</b>



those who knew the diagnosis)				
Not considered for treatment	21.6% (37/171)	16.5% (31/188)	1.55	0.21
Not located (of those considered for treatment)	12.7% (17/134)	8.9% (14/157)	1.08	0.30
Refuse treatment (from those located)	14.5% (17/117)	1.4% (2/143)		<b>&lt; 0.05<sup>2</sup></b>
Treatment prescription (of the total)	58.5% (100/171)	75% (141/188)	0.09	<b>0.009</b>
Sustained viral response	98% (98/100)	98.6% (139/141)		<b>&gt; 0.05<sup>2</sup></b>

Statistical analysis performed using Chi2 test, except <sup>1</sup>U-Mann Whitney and <sup>2</sup>Fisher's exact test. Significant  $p < 0.05$ .