Anti-HCV seroprevalence in pregnant women in France

F Roudot-Thoraval, J-M Pawlotsky, L Deforges, P-P Girollet, D Dhumeaux

Abstract

In a study designed to assess the prevalence of antibodies to hepatitis C virus (HCV) in pregnant women, anti-HCV positivity in French pregnant women was twice as high as that found in French blood donors. Positive ELISA 2 results were confirmed by positive RIBA 2 in most subjects, and seven of nine RIBA 2 positive patients also tested positive for HCV-RNA by PCR. High rates of anti-HCV positivity were seen among immigrant pregnant women, partly because of false positive results with ELISA 2. RIBA 2 results suggested that the prevalence of HCV infection was not any higher in immigrant compared with French pregnant women.

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The aim of this study was to assess the seroprevalence of antibodies to hepatitis C virus (anti-HCV) in pregnant women who represent a healthy population and in a population unselected for risk factors of transmitted diseases.

Départements
d'Epidémiologie and
d'Hépatologie,
Service de
Bactériologie-Virologie,
Hôpital Henri Mondor,
Créteil, France
F Roudot-Thoraval
J-M Pawlotsky
L Deforges
P-P Girollet
D Dhumeaux

Correspondence to:
Dr F Roudot-Thoraval,
Département
d'Epidémiologie,
Département d'Hépatologie,
Hôpital Henri Mondor,
Créteil, France.

TABLE I Anti-HCV positivity (ELISA 2) according to geographical origin

Origin	Women studied (n)	Anti-HCV positive (n)	Prevalence of anti-HCV (%)
French	1614	25	1.55
Mainland	1471	25	1.70
Overseas territories	143	0	0
Immigrant	753	16	2.13
South Europe	101	1	0.99
North Africa	301	5	1.66
West Africa	246	10	4.07
Asia	105	0	0

TABLE II Comparison of ELISA 2, RIBA 2, and polymerase chain reactions (PCR) results in French and immigrant pregnant women

Women studied (n)	ELISA 2 positive (%)	RIBA 2 positive (%)	HCV-RNA positive
French (1614)	25 (1.55)	16 (0.99)	7/15*
Immigrant (753)	16 (2.13)	8 (1.06)	1/6†

*Nine of 15 had positive RIBA 2; all seven PCR positive women had positive RIBA 2.

†Three of six had positive RIBA 2; the only PCR positive woman had positive RIBA 2.

TABLE III Risk factors associated with anti-HCV positivity (ELISA 2)

Anti-HCV antibodies	Positive (n=41)		Negative (n=2326)	Positive women
Previous intravenous drug addiction	24.4%	p<0.001	0.3%	59%
History of transfusion	22.0%	p<0.01	4.6%	8%
Professional exposure	7.3%	NS	5.8%	2%
Previous hepatitis	26.8%	p<0.001	3.4%	12%
At least one risk factor	58.5%	p<0.001	10.2%	9%

Methods

A population of 2367 pregnant women was studied, and subdivided according to geographical origin. All were questioned about their exposure to risk factors for HCV. The presence of anti-HCV antibodies in serum was detected using the second generation ELISA (ELISA 2) and second generation RIBA (RIBA 2). Polymerase chain reaction was used to test for HCV-RNA in small numbers of subjects. Fisher's test of exact probability was used in a statistical comparison of risk factors in the two groups.

Results

The prevalence of anti-HCV positivity (ELISA 2) according to geographical origin of the pregnant women is shown in Table I. In French pregnant women, the prevalence of anti-HCV was found to be twice as high as that found in French blood donors (1.55% v 0.7% respectively, p<0.001). Among immigrant populations, the highest anti-HCV seropositivity rate was found in those from west Africa (4.07%).

When the women were tested with RIBA 2, the seropositivity rate in French women fell from 1.55–0.99%, and in immigrant women from 2.13–1.06%, bringing the prevalence in the two populations to a similar value (Table II). This suggests a high number of false-positive results on ELISA 2 in the immigrant population. All seven French women and the one immigrant woman who tested positive for HCV-RNA on polymerase chain reaction were also RIBA 2 positive. Analysis according to risk factors for HCV infection showed a significant association between anti-HCV positivity (ELISA 2) and previous intravenous drug addiction, history of transfusion, and previous hepatitis (p<0.001 in each case) (Table III). Comparison between French and immigrant populations showed considerable variations in the proportions of subjects with various risk factors, but there were no statistically significant differences (Figure).

When considering only women with positive RIBA 2 results, risk factors for HCV infection were identified in a similarly high proportion in French and immigrant women (81% and 75%, respectively).

Conclusions

In French pregnant women, the prevalence of anti-HCV is twice as high as that in blood donors and probably provides a better estimate of the actual prevalence of these antibodies in

France. Positive ELISA 2 results were confirmed by positive RIBA 2 in most subjects, and seven of nine RIBA 2 positive subjects tested on polymerase chain reaction were also positive for HCV-RNA. Among immigrant pregnant women, high rates of anti-HCV positivity were seen with the ELISA 2 test, partly because of false-positive results. Based on RIBA 2 results, the prevalence of HCV infection does not appear to be any higher in these women than in French women.

Figure Risk factors for HCV infection in French and immigrant pregnant women.