

Positivity for Anti-HCV Antibodies among Italian Hospitalized Patients

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Abstract: To assess the prevalence of anti Hepatitis C Virus antibodies (anti-HCV) in patients admitted to a primary hospital, far beyond a decade from hepatitis C virus discovery. Six hundred and four consecutive patients (307 female), admitted to the medical ward of Roccadaspide hospital during the year 2002 were studied. Firstly, all the enrolled subjects were examined for the anti-HCV. Secondly, the anti-HCV positive patients were screened for the qualitative HCV-RNA. Finally, the HCV-RNA positive patients were tested for viral load and HCV genotype. Among the patients enrolled, 43 (7.12%) tested reactive for anti-HCV, without difference between sexes. Thirty two of these subjects (74.4%) were unaware of their condition. Among the anti-HCV positive subjects, 81.4% came out to be HCV-RNA positive (18/25 males, 72.0% and 17/18 females, 94.4%). Predominant genotypes were 1b and 2a/2c (54.3 and 34.3%, respectively); more uncommon resulted to be 1a (8.6%) and 3a genotypes (2.8%).

Key words: Awareness, anti-HCV prevalence, antibodies, hospitalized patient, Southern Italy

INTRODUCTION

Approaching the thirteenth year in which the Hepatitis C Virus (HCV) testing is available, the rate of HCV infection remains high in Italy (Ansaldi *et al.*, 2005), not significantly different from the one deduced by previous analysis (Wasley and Alter, 2000). We have plenty of studies on blood donors, on dialyzed patients or pregnant women but very few ones on patients admitted to other wards. Furthermore, there are scarce data (Capron *et al.*, 1999) on "silent" infection of HCV, i.e., subjects that harbour virus C and do not know their status. Its evaluation is important because could offer the possibility to limit the transmission of infection by reducing some latent risk factors that contribute to involuntarily increase the HCV diffusion among the population.

Nowadays, detecting the serum presence of the anti-HCV antibodies by recently available kits has improved the HCV infection screening (Galel *et al.*, 2002). Further more, employing an anti-HCV/HCV-RNA (Immunoassay/ Polymerase Chain Reaction) sequential testing strategy, it is possible to virtually detect every chronically infected patient, capturing also the one in prolonged or incomplete sero-conversion (Schroeter *et al.*, 2005).

Val Calore is a well-delimited hilly zone of the southern Italy. Historical, cultural, oro- and geo-graphic characteristics did not allow population of this area had genetic exchanges with that of surrounding zones; in addition, it was not served by any Hospital until recently. For those reasons the aforementioned locality is an interesting territory for epidemiologic studies.

The aim of our study, was to evaluate the anti-HCV prevalence/incidence in a cohort of patients, admitted to the medical unit of a primary hospital, likely representative of the Val Calore population; successively, the frequency of HCV-RNA positivity in the anti-HCV positive subjects and in the subjects HCV-RNA positive the viral load and genotype; finally, the awareness about their condition.

MATERIALS AND METHODS

Consecutive patients admitted in the year 2002 to the General Medicine Department of Roccadaspide hospital were prospectively considered, whatever the reason of admission had been (emergency or not), provided they were born and resident in the geographical territory of Val Calore, or had been living in this territory for at least 15 years.

Six hundred and four patients (307 female) fulfilling the inclusion criteria entered the study. All the patients underwent routine screening including ASpartate aminoTransferase, ALanin aminoTransferase, Alkaline Phosphatase, Gamma Glutamyl Transpeptidase, CHolinesterase, Prothrombin Time, HBsAg as well as anti-HCV. Serum immunoglobulins were performed to exclude impaired specific antibody responses. Participants were asked about the date and result of their most recent laboratory test before having their blood drawn. The patients who were not in accordance with these inclusion criteria (tourists, people moved since short time, etc.) were excluded, even if suffering from HCV infection, already known or discovered during the hospitalization.

The test employed for anti-HCV detecting (Mymel *et al.*, 2005), was AxSYM® HCV version 3, (Abbott Laboratories, Abbott Park IL). Its sensitivity and specificity were 99.84 and 99.60%, respectively.

All the anti-HCV positive subjects underwent abdominal Ultra Sonography (if not previously made for other reasons) and qualitative HCV-RNA assay, the Cobas Amplicor HCV Test®, version 2.0 (Roche Diagnostics), with limit of detectability 50 UI mL⁻¹.

In the final part of the study the subjects HCV-RNA positive were evaluated for quantitative HCV-RNA and HCV genotype. The first one was tested by Cobas Amplicor HCV Monitor®, version 2.0 (Roche Diagnostics). Its sensitivity was 600 UI mL⁻¹. The second one was analyzed by Genotype HCV III® (Nuclear Laser Medicine, Milan, Italy).

Frequencies were studied using the chi-square test and Fisher's exact test. A p value of <0.05 was considered significant.

RESULTS

Among the enrolled, hospitalized patients, 43 came out to be anti-HCV positive. In this setting our study reported an anti-HCV prevalence of 7.12% and an incidence/year of ten new cases per 10,000 per year.

Median (range) age of anti-HCV positive subjects was 69.5 (33-82) years.

The gender distribution of the anti-HCV reactivity was the following: 18 out of 297 males (6.06%) in comparison to 25 out of 307 females (8.14%), without statistically significant difference (χ^2 : .70; p .40).

Thirty two (74.4%) out of 43 anti-HCV positive subjects were unaware of their condition, (χ^2 : 0.20; p:<0.0001, Fig. 1). Twenty eight (65.1%) were relatives or neighbours.

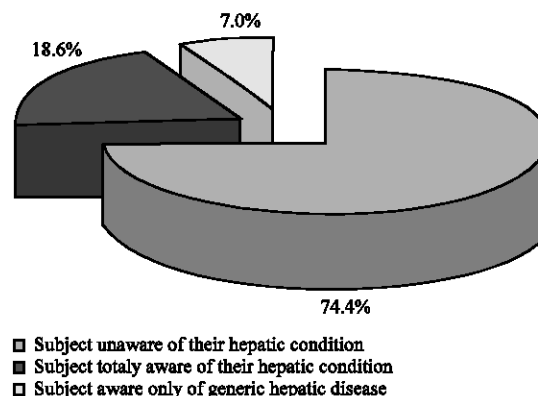


Fig. 1: Patients knowledge of their condition of HCV positivity

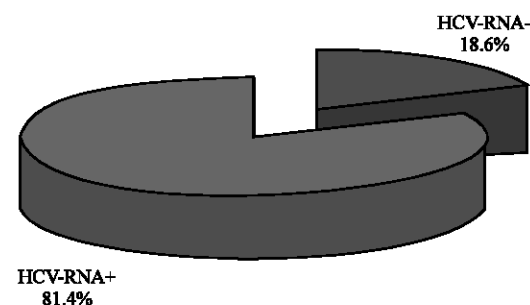


Fig. 2: HCV-RNA positivity among the anti-HCV positive subjects

Of the remaining eleven anti-HCV-positive patients, 8 (18.7%) were conscious of their condition (4 cases of cirrhosis and 4 cases of chronic hepatitis) and 3 (6.9%) subjects knew about suffering from a “generic” HCV-related disease, without having performed further diagnostic investigations.

Successively, 35 subjects (81.4%, eighteen females) out of the 43 anti-HCV positive patients resulted HCV-RNA positive (Fig. 2). HCV-RNA positivity was 94.4% in males (17/18) and 72.0% (18/25) in females, without statistically significant difference (p .11; Fisher's exact test).

The 8 anti-HCV positive subjects (1 male and 7 females) with negative HCV-RNA had normal laboratory liver tests; in these the presence/absence of liver disease remained scarcely defined, due to the lack of histological features. After successive contacts in the following 4 years, the uncertain condition was not modified. The last part of the study showed a major presence of the 1b genotype (19/35 cases; 54.3%). Non1b genotypes consisted in the 2a/2c type (12/35 cases; 34.4%), 1a type (3/35 cases, 8.6%) and 3a type (1/35 cases; 2.8%).

None of the studied subjects was infected with more than 1 genotype. Viral load ranged from 26,400-1,504,000 IU mL⁻¹, independently from genotype.

DISCUSSION

This peculiar cohort of hospitalized patients gave us precious information because it was an at-random sample, having data been collected independently from the entry diagnosis.

Indeed, present report has some methodological limitations. In fact, the real incidence of HCV infection in this area could be different from that shown in our study, because there was no adequate research on young people. But, it is necessary to stress that persons belonging to the last generation, due to an improvement of the aseptic techniques, are partially free from the contagion, obviously excluding the drug abusers.

Our study confirms that HCV infection is still endemic in southern Italy, taking as morbidity measure a calendar year. The more frequent genotypes in Val Calore were 1b and 2a/2c, in line with previous study (Osella *et al.*, 1997, 1999; Guadagnino *et al.*, 1997; Maio *et al.*, 2000). We found elevated HCV-RNA positivity among the anti-HCV-positive subjects (81.4%); this figure is higher than the 54.4% found in a previous analysis conducted in southern Italy (Maio *et al.*, 2000), but in line with the 80.6% found in a French population (Dubois *et al.*, 1997).

The distribution of HCV-RNA positivity was similar in males than in females. These results do not confirm that the women are more likely to remove the HCV than men (Maio *et al.*, 2000).

Noteworthy, the major part of the newly discovered anti-HCV positive individuals did not learn of their condition. Indeed, early stages of the HCV infection/disease are almost always asymptomatic. Not being cognizant of staying in an active phase of viral replication, these individuals were not used to paying attention to the eventual risk factors linked to their life-style.

The diffusion of the viral infection in the Val Calore population certainly does not rely on multiple-use, glass syringes, widely utilized in the past in Italy (Montella *et al.*, 2003) but, probably, on different mechanisms, i.e., tattooing, piercing or others yet.

HCV infection is an emerging and lasting public health concern. Awareness and education of the general population are required regarding modes of HCV transmission. HCV positive subjects should be informed

about their disease, counselled and referred to Hepatological Units and permanently deferred for organ donations. Potential targets for intervention to decrease the spread of HCV infection could be ongoing surveillance, increased clinician suspicion of disease presence, reporting systems of the epidemiology and management of chronic hepatitis C, availability of diagnosis and, last but not least, treatment facilities. From a public health perspective, these measures will be of paramount importance to face this still "silent" infection.

All in all, the preventive policy still lacks of effectiveness.

CONCLUSION

After various years from the availability of anti-HCV testing, the prevalence of hepatitis C virus-related infection is still high. The lack of awareness of the seropositivity for hepatitis C virus could be linked to the hidden diffusion of this infection. Not knowing the major part of infected persons about being in an active phase of viral replication, they did not pay attention to the eventual risk factors linked to their life-style.

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