THE STATUS OF HEPATITIS C – THE SILENT "VOLCANO" – IN SOUTH AFRICA

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Introduction

Hepatitis C is a "silent" epidemic as very little of its epidemiology is known to the public, health care workers, populations at risk or policy makers. Most carriers do not know that they are infected with the virus as they are asymptomatic for many years of their life. In 20% of cases the source of Hepatitis C Virus (HCV) infection is unknown although intravenous drug use remains the most common risk factor in the UK and US.[1] In South Africa and other African countries, unhygienic injection practices and traditional scarifications are possible routes of HCV transmission.[2]

Testing for hepatitis C is a sensitive issue. Many patients still suffer with the stigma associated with infection. This stigma contributes to the paucity of information concerning the extent of the growing epidemic in which transmission continues. Worldwide, 170-180 million people are infected with HCV.[3] Of these, about 80% will become chronically infected[4], with 25-30% developing liver cirrhosis and/or hepatocellular carcinoma.[5] The seroprevalence of HCV in South Africa ranges from low (1.4-1.8%) in blood donors and health care workers to high (13-33%) in HIV positive individuals and patients with chronic active hepatitis.[6-9] However, even with a seroprevalence as low as 1-1.5%, the USA is currently facing a huge burden of disease as a result of HCV-related hospitalizations and liver transplants, with an estimated cost of $10 billion for the period 2010-2019.[10]

Standard drug therapy for hepatitis C infection is injectable pegylated interferon and oral ribavirin. Direct-acting antivirals are used in South Africa, mostly in the private sector and in combination with pegylated interferon and ribavirin.[11] Response to standard therapy is affected by the virus genotype[12] and/or host genetic factors, such as HLA-type, interleukin-28B, and ethnic group.[13-15] Co-infections (HIV, HBV), co-morbidities (diabetes mellitus, obesity) and social factors (alcohol and substance use) can worsen HCV liver disease.[16-17] The contribution of HCV to liver disease, as well as HCV/HIV co-infection, has not been well characterized in South Africa as studies to date have been small and limited.[8,18]

A comprehensive, national surveillance database is needed to identify demographic trends in infection, changing viral genotypic frequencies, follow-up acute infections/serology-positives for molecular test confirmations (according to the national algorithm, draft National Guidelines for the prevention and control of Hepatitis C virus in South Africa, 2011) as well as for further treatment and management. The database needs to be interlinked with other databases/registries, such as the cancer registry and/or hospital records to model burden of disease and costs related to HCV infection in SA.

Methods

A national HCV surveillance database has been developed at the National Institute for Communicable Diseases (NICD-2012), in collaboration with the NHLS Corporate Data Warehouse (CDW), to enable serology and molecular tests as well as demographic information to be captured on one database. Enhanced data such as transmission risks need to be included. Also, the laboratory at the NICD has a database on laboratory-confirmed cases only.

Results

In a recent preliminary analysis of a total of 2360 viral hepatitis C requests received at the NICD from January 2010 - December 2012, 1002 patient specimens tested positive on viral load (>15 international units/ml). The median age was 41-48 years. Like other studies[19], HCV is mostly detected in persons aged 41-74 years (figure 1). A higher number of males (53%) were infected compared to females (40%).

Genotyping was performed on 886 samples with sufficient volume of specimen and viral load of >200 IU/ml, using either a line-probe assay (LiPA) and/or sequencing of the 5'untranslated region. A total of 16 HCV subtypes and mixed intergenotypic infections (6.6%) was identified. Genotype 5a was dominant confirming previously published data[20,21] and accounted for 36% of the laboratory-confirmed cases (figure 2), followed by 1b (22%), 3a (11.7%) and 4 (8.91%) (table 1). Clinical studies in collaboration with the South African Gastro-Intestinal Tract (GIT) clinics, demonstrate that patients with genotype 5a respond better to combination therapy than those with genotype 1 and 4, as noted in other studies.[22,23]

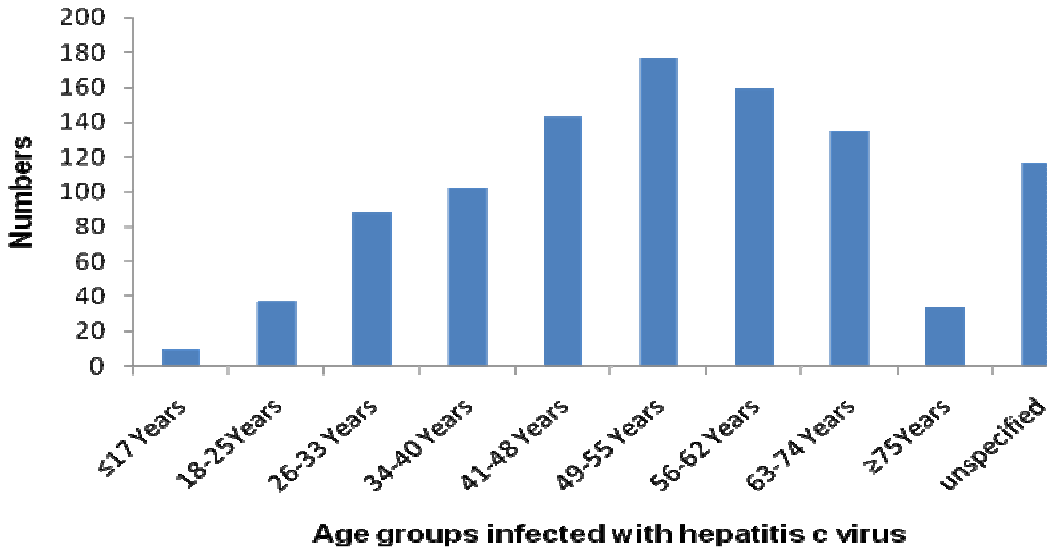

Figure 1. Number of hepatitis C laboratory confirmed cases per age group received by the NICD during the period January 2010 - December 2012.

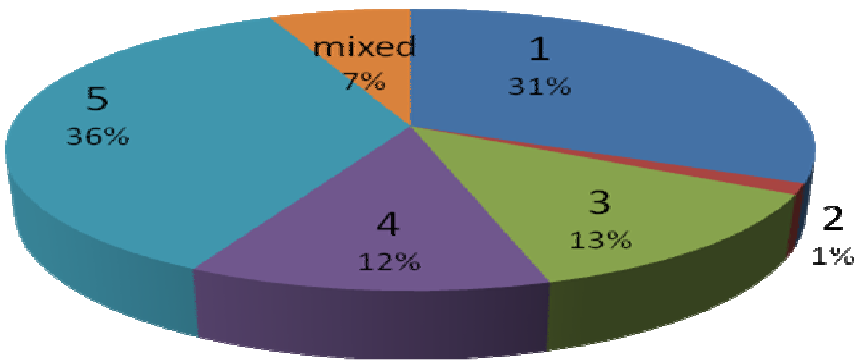

Figure 2. Major HCV genotypes identified in 886 laboratory confirmed hepatitis C positive samples received by the NICD during the period January 2010 - December 2012.

Table 1. A breakdown of all genotypes/subtypes found in hepatitis C positive samples received by the NICD during the period January 2010 - December 2012.

Genotypes/Subtypes	No.	%
1	63	7.11
1a	20	2.25
1b	195	22
2	5	0.56
2a	2	0.23
2a/2c	2	0.23
2b	2	0.23
3	8	0.9
3a	104	11.7
4	79	8.91
4a	2	0.23
4a/4c/4d	11	1.24
4e	7	0.79
4f	3	0.34
4h	8	0.9
5a	316	35.7
mixed	59	6.66
Total	886	100

Discussion

These databases can only be truly comprehensive and functional if the information is supplied on request forms and captured onto the respective reporting systems: DISA or TrackCare. Completeness of data is a challenge. For example, request forms that are used to populate the database are not always complete (11.67% gave no age/birth date). Hepatitis C awareness and training programs, infrastructure and staff are needed to aid in the collection of data for the database. To date, several NICD staff have been trained in appropriate data capture, collaborators at academic hospitals and private laboratories have been informed about the national surveillance database for hepatitis B and C, and HCV advocacy group meetings (Western Cape) and World hepatitis Day initiatives have been facilitated. Public awareness about HCV, diagnosis and treatment accessibility and referrals to academic hospitals need to be strengthened. The development of appropriate surveillance systems and tools can play an important role in informing on policy in terms of the numbers of infected individuals, projections on cost of therapy, potential interventions to prevent new infections and effectiveness of treatment programmes.

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