

## Population-Based Hepatitis C Survey in a Rural Block

Hepatitis C is a transmissible liver disease that results from infection with hepatitis C virus (HCV). It can range in severity from asymptomatic stage to mild episode lasting a few weeks to a serious, lifelong illness. There are an estimated 130-170 million people with chronic HCV infection world-wide with approximately 350,000 deaths occurring annually due to HCV-related liver diseases.<sup>[1]</sup> Further, 3-4 million people are infected with HCV each year. Global prevalence of HCV infection is around 2% in general population and some of the countries with high rates of chronic infection are Egypt (22%), Pakistan (4.8%) and China (3.2%).<sup>[2,3]</sup>

In India, several studies on voluntary or mixed donors have also noted a prevalence of hepatitis C below 2%.<sup>[4-6]</sup> Population-based studies from Maharashtra ( $n=1054$ ), West Bengal ( $n=2973$ ) and Andhra Pradesh ( $n=890$ ) showed similar trend of low prevalence (0.09%, 0.71%, and 2.02%, respectively) and according to estimates about 20 million people are known to have HCV infection in India.<sup>[7-9]</sup> The impact of this infection has just started to emerge in India. We describe our experiences and observations in context of cross-sectional population-based survey undertaken to assess hepatitis C burden in a block of Ratia (district Fatehabad) in the state of Haryana, India, due to sustained call from local people.

In this area, known cases ( $n=120$ ) of hepatitis C had been demanding free treatment from government that had assumed political significance. Therefore, a survey was undertaken from 13 to 25 February 2012 to cover the entire block area. Intense awareness generation activities through local newspaper, cable television, hoardings, announcement from religious institutions, banners and word-of-mouth publicity by local health staff members and volunteers was conducted prior to conduct of survey. This opportunity was also undertaken for informing community on hazards of hepatitis C, routes of transmission, methods of prevention, removal of myths and misconception, advisories, warning for discouragement of unnecessary therapeutic injections, mandatory use of new disposable-syringes/needles by local health practitioners (formal and informal) and

blades by hair-dresser for each client and effective biomedical waste management was also undertaken.

A one-day standardization training of field investigators and local staff members was undertaken after which house-to-house visit was initiated in municipal wards and villages in rural areas by a team of doctors (resident/intern), laboratory technicians, nursing students, local health workers, and community volunteers. Health personnel and transports were mobilized from local and adjoining districts and medical colleges from within the state. Day-wise itinerary and route maps were developed to cover entire area of the block including rural villages. A total of 20 teams were constituted, and each team covered at least 250 households with larger villages visited by two teams. In some of the villages, camp-based screening approach was undertaken following prior announcement of team arrival. Each team carried with them disposable syringes-needles, spirit-swabs, vacutainers, needle-shredder, puncture-proof plastic containers, appropriately labeled bio-medical waste bags, checklist, case-records, and registers. Humanely possible attempts were made to cover entire population of the block and those who were not available at their respective homes were requested to report to community health center (Ratia) for investigation that was made available for both kind of visitors-self (voluntary) and referred.

An adult household was enquired on the basis of checklist: h/o blood transfusion, dialysis, organ transplantation, injecting drug user, therapeutic injections, acupuncture, tattoo and high risk sexual behavior. The list also included any individual (18-60 years) suffering from non-specific signs and symptoms including pain in limbs, easy fatigability, decreased appetite, nausea, vomiting, abdominal pain, fever, dark urine, and jaundice. In case an individual replied in the affirmative, a brief history of the concerned available person was recorded and aseptically 3 ml whole blood was collected in a uniquely labeled vacutainers after obtaining informed written consent. Known hepatitis C cases, their spouse and children were also offered the test. Individuals without any symptoms but desirous of undertaking the investigation were also offered the test.

Samples were then centrifuged to separate serum/plasma and tested using third generation ELISA. Approximately 150,000 population was under surveillance during the survey out of which 7114 samples were collected and only 1503 (M: 58%; F: 42%) were found positive. The age-group of positive cases were as follows: upto 20 years

(5.04%), 21-40 years (51.86%), 41-60 years (37.45%) and 61/above (5.63%) excluding nearly 6.0% of cases where age was not available. Sample results of individuals who were not permanent resident of the surveyed block were not included in final analysis. It is noted that blood banks in India are routinely screening for hepatitis C since 2001-02; auto-disable (AD) syringes are in use for maternal & childhood immunization since 2005; and there were 7.0% drug addicts amongst positive cases in studied samples. One of the limitations of present survey was that samples were not further evaluated for HCV RNA genotyping. In conclusion, hepatitis C burden in this population-based survey in a rural block of Haryana was found to be 1.0%.

### Acknowledgments

We would like to acknowledge Vice-Chancellor and Director, PGIMS, Rohtak for administrative support. Our sincere appreciation for Prof. R. B. Jain and Prof. Pardeep Khanna, Department of Community Medicine, PGIMS, Rohtak for their valuable guidance. Special mention is noted for Secretary (Health), DGHS (Haryana), State/District Nodal Officer (IDSP), Civil Surgeon (Fatehabad), Senior Medical Officer (Ratia), IDSP staff (Ratia) and other para-medical and ancillary staff of Ratia, Fatehabad district for leadership, resource mobilization, coordination and support; Dr. P. S Gill and laboratory staff from the department of Microbiology, PGIMS, Rohtak for supervision and assistance. We also acknowledge the contribution of residents and interns for field survey.

**Sandeep Sachdeva, Bharti Mehta**

*Department of Community Medicine,  
PGIMS, Rohtak, Haryana, India.  
E-mail: drsachdeva@hotmail.com*

### References

1. Shepard CW, Finelli L, Alter MJ. Global epidemiology of hepatitis C virus infection. *Lancet Infect Dis* 2005;5:558-67.
2. Hepatitis C factsheet. WHO. (Accessed May 1, 2012, at <http://who.int/mediacentre/factsheets/fs164/en/index.html>).
3. Mukhopadhyaya A. Hepatitis C in India. *J Biosci* 2008;33:465-73.
4. Sonwane BR, Birare SD, Kulkarni PV. Prevalence of sero-reactivity among blood donors in rural population. *Indian J Med Sci* 2003;57:405-7.
5. Gupta N, Kumar V, Kaur A. Sero-prevalence of HIV, HBV, HCV and syphilis in voluntary blood donors. *Indian J Med Sci* 2004;58:255-7.
6. Singh S, Malhotra V, Sarin SK. Distribution of hepatitis C virus genotypes in patients with chronic hepatitis C infection in India. *Indian J Med Res* 2004;119:145-8.
7. Chadha MS, Tungatkar SP, Arankalle VA. Insignificant prevalence of antibodies to hepatitis C in a rural area of western Maharashtra. *Indian J Gastroenterol* 1999;18:22-3.
8. Chowdhury A, Santra A, Chaudhuri S, Dhali GK, Chaudhuri S, Maity SG, *et al.* Hepatitis C virus infection in the general population: A community-based study in West Bengal, India. *Hepatology* 2003;37:802-9.
9. Khaja MN, Madhavi C, Thippavazzula R, Nafeesa F, Habib AM, Habibullah CM, *et al.* High prevalence of hepatitis C virus infection and genotype distribution among general population, blood donors and risk groups. *Infect Genet Evol* 2006;6:198-204.

#### Access this article online

Quick Response Code:



Website:

[www.najms.org](http://www.najms.org)

DOI:

10.4103/1947-2714.103325