

HBsAg AND HCV: INCREASING TEST REQUESTS AND DECREASING FREQUENCY OF POSITIVE TESTS AT CLINICAL LABORATORY OF AYUB TEACHING HOSPITAL, ABBOTTABAD

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Background: This audit was carried out to assess the frequency of positive results out of the total test requests made for HBsAg and HCV at our laboratory. The frequencies for three years were compared for significance. We have reported monthly total test requests and frequency of positive tests for each of these years in this article. **Methods:** This study is an audit of all HBsAg and HCV test requests received at clinical laboratory of Ayub Teaching Hospital, Abbottabad during a three year period from 2002-2004. Both the tests were made using Rapid device (immunochromatographic kits) method. Frequencies of positive results were calculated from the total test requests for each month of these three years. Cumulative frequencies were compared for statistical significance of difference. **Results:** Total HBsAg tests requested for years 2002, 2003 and 2004 were 2058, 2563 and 5207 respectively. The frequencies of HBsAg positive cases out of these were 5.53%, 4.36% and 2.68% respectively. The number of test requests for HBsAg increased significantly from 2002 to 2003 and 2004, while the frequency of positive tests decreased significantly ($p < .001$) during this period. Total HCV requests for years 2002, 2003 and 2004 were 1261, 1671 and 4638 respectively. The frequencies of HCV positive cases out of these were 14.19%, 8.79% and 5.84% respectively. Just like HBsAg, number of test requests for HCV increased significantly from 2002 to 2003 and 2004, while the frequency of positive tests decreased significantly ($p < .001$) during this period. **Conclusions:** The test requests have considerably increased in the last few years, probably as a result of increasing awareness of clinicians and public. However most of these tests are negative. In view of high prevalence of both HBsAg and HCV in Pakistan, this overcautious attitude of clinicians is understandable although this is a burden on the pocket of patients and hospital resources.

Keywords: HBsAg, HCV, Microbiology, Audit, Clinical laboratory

INTRODUCTION

Hepatitis B (HBV) and C (HCV) are rapidly emerging as major health problems in developing countries including Pakistan. Chronic liver disease (CLD) is a major cause of mortality in Northern Pakistan where HCV infection is the main cause of chronic liver disease followed by either HBV or a combination of these viruses.¹ HBV and HCV are prevalent in Hazara^{2,3} and other parts of NWFP,⁴ like the rest of Pakistan. HCV is a leading cause of chronic liver disease in some parts of the country where still the leading risk factor identified is the use of contaminated syringes by quacks.⁵ The overall seroprevalence of HCV in male volunteer blood donors has been reported from Karachi to be 1.8%.⁶ The awareness campaigns have gained momentum in the last few years but still level of awareness is very low. Knowledge of "high risk" professionals like barbers about hepatitis and risks of transmission is very low and their practices like reuse of razor that may spread hepatitis are very common.⁷ The objective of this study was to determine the frequency of HBsAg and HCV positive tests from the total requests received at our laboratory and to compare the yearly trends for significance of difference.

MATERIAL AND METHODS

This audit was carried out at Microbiology section of Clinical Laboratory of Ayub Teaching Hospital, Abbottabad. This 1000 bed tertiary care hospital is the main teaching hospital of Ayub Medical College. All the laboratory investigations from wards (in-patients) and OPD (outdoor) are referred to clinical laboratory. In addition other primary and secondary care hospitals of the area refer to this laboratory for many investigations. We calculated frequency of HBsAg and HCV positive tests out of the total test requests for each month of the years 2002, 2003 and 2004. The total test requests and frequencies of positive cases were then compared for significance at a confidence level of 95%

using chi square test. Both HBsAg and HCV were detected using immunochromato-graphic assay (one step rapid assay kit/rapid Device method).

Table-1: Frequency of HBsAg positive cases out of the total tests requested in the years 2002, 2003 and 2004

Month	2002		2003		2004	
	Total Tests Done	Total No. of Positive (%)	Total Tests Done	Total No. of Positive (%)	Total Tests Done	Total No. of Positive (%)
January	151	7 (4.6%)	177	5 (2.8%)	244	5 (3.2%)
February	113	6 (5.3%)	98	8 (8.1%)	229	8 (3.5%)
March	164	11 (6.7%)	194	6 (3.0%)	415	7 (1.6%)
April	155	12 (7.7%)	188	6 (3.1%)	468	13 (2.7%)
May	177	12 (6.7%)	204	10 (4.9%)	477	21 (4.4%)
June	215	17 (7.9%)	186	7 (3.7%)	584	12 (2.0%)
July	211	12 (5.6%)	217	16 (7.3%)	515	12 (2.3%)
August	218	11 (5.0%)	303	13 (4.2%)	525	10 (1.9%)
September	134	4 (2.9%)	317	14 (4.4%)	513	16 (3.1%)
October	225	11 (4.9%)	285	13 (4.6%)	419	8 (1.9%)
November	151	5 (3.3%)	141	8 (5.7%)	325	15 (4.6%)
December	144	6 (4.1%)	253	6 (2.4%)	493	13 (2.6%)
Total	2058	114 (5.53%)	2563	112 (4.36%)	5207	140 (2.68%)

Analysis for table-1

Total HBsAg tests requested:

Total tests received in year 2003 were significantly more than the total tests received in 2002 ($p < 0.001$)

Total tests received in year 2004 were significantly more than the total tests received in 2002 ($p < 0.001$) and 2003 ($p < 0.001$)

Frequency of positive cases calculated out of total tests:

Frequency of positive cases out of total tests in year 2003 was significantly less than the total tests received in 2002 ($p < 0.001$)

Frequency of positive cases out of total tests in year 2004 was significantly less than the total tests received in 2002 ($p < 0.001$) and in 2003 ($p < 0.001$)

Table-2: Frequency of HCV positive cases out of the total tests requested in the years 2002,2003 and 2004

Month	2002		2003		2004	
	Total Tests Done	Total No. of Positive (%)	Total Tests Done	Total No. of Positive (%)	Total Tests Done	Total No. of Positive (%)
January	80	13 (16.2%)	94	9 (9.5%)	189	17 (8.9%)
February	68	11 (16.1%)	121	8 (6.6%)	191	20 (10.4%)
March	112	20 (17.8%)	124	6 (4.8%)	384	21 (5.5%)
April	111	29 (26.0%)	118	10 (8.4%)	392	30 (7.7%)
May	123	11 (8.9%)	137	13 (9.4%)	392	23 (5.9%)
June	133	22 (16.5%)	119	14 (11.7%)	307	25 (8.1%)
July	119	12 (10.0%)	147	15 (10.2%)	455	33 (7.3%)
August	87	08 (9.1%)	186	22 (11.8%)	451	26 (5.8%)
September	92	16 (17.3%)	212	21 (9.9%)	455	26 (5.7%)

October	142	12 (8.4%)	229	13 (5.6%)	391	13 (3.3%)
November	103	16 (15.5%)	107	9 (8.4%)	301	18 (6.0%)
December	91	9 (9.8%)	77	7 (9.0%)	460	19 (4.1%)
Total	1261	179(14.19%)	1671	147 (8.79%)	4638	271 (5.84%)

Analysis for table-2

Total HCV tests requested:

Total tests received in year 2003 were significantly more than the total tests received in 2002 ($p < 0.001$)

Total tests received in year 2004 were significantly more than the total tests received in 2002 ($p < 0.001$) and 2003 ($p < 0.001$)

Frequency of positive cases calculated out of total tests:

Frequency of positive HCV cases out of total tests in year 2003 was significantly less than the total tests received in 2002 ($p < 0.001$)

Frequency of positive cases out of total tests in year 2004 was significantly less than the total tests received in 2002 ($p < 0.001$) and in 2003 ($p < 0.001$)

RESULTS AND DISCUSSION

The results of this audit are summarized in tables 1 and 2. In case of both HBsAg and HCV the test requests showed a highly significant ($p < .001$) increase while frequency of positive tests showed a significant ($p < .001$) decline from 2002-2004.

The major limitation of our study is that we did not report the history or presenting complaints of our subjects (reason for test request) as in our hospital the trend is to not to send patient history with the test requests. We have tried at different levels to introduce forms for test requests but they are generally filled by not the requesting clinician but by the nurses. However patients of CLD form the largest group of test requests. In addition voluntary blood donors being tested for suitability also form a major group. Similarly people who have any HBsAg or HCV positive close relative want themselves to be tested. Therefore we have restricted our objectives and results to test requests and positive results only.

Our study shows a clear trend of increasing test requests from 2002 to 2004. It reflects increasing will of the clinicians to diagnose presence of HBV and HCV in all relevant scenarios. This over cautiousness is result of government and WHO sponsored campaigns directed at creating awareness in public and in the medial professionals. Surprisingly despite of all the awareness campaigns used syringes, unsafe blood transfusion and barbers still remain most important risk factors for spread of the disease in Pakistan.⁷ Unsafe blood transfusion in obstetrics cases has been reported from Karachi as a major cause of transmitting HCV.⁸ Transmission rates of hepatitis C virus (HCV) infection through non-sexual household contacts have been considered to be very low. However a local study has reported that non-sexual household exposure may play a role in efficient HCV spread to household contacts of HCV-infected persons and needs further evaluation.⁹

No local studies on trend analysis of general population are available however trend analysis of male volunteer blood donors has revealed a significant ($P < 0.001$) linear increase in proportions of HCV-seropositive donors from 1998 to 2002.⁶ Another study on blood donated by healthy donors from both Armed Forces and civilian population over a five years period at an Army transfusion facility, reported that 3.3% out of 103858 blood donors were HBsAg while 4.0% were anti HCV.¹⁰ It has been reported that seroprevalence of antibodies to HCV in health workers are 20 folds higher than health workers in the developed countries. Similarly, the prevalence of HBV although not as high as HCV has been reported as “significant”.¹¹

We have found a trend of increasing test requests at our hospital. Although our sample is not true representative of our country or even for our region, but we feel this trend will go a long way in controlling this “hidden epidemic” of two deadliest causes of CLD in our country. We are reporting this study with a recommendation to carry out proper statistical trend analysis in all major clinical laboratories. This will have a confidence building booster effect on the organizations trying to control these menaces through extensive campaigns.

CONCLUSIONS

The test requests have considerably increased in the last few years, probably as a result of increasing awareness of clinicians and public. However most of these tests are negative. In view of high prevalence of both HBsAg and HCV in Pakistan, this overcautious attitude of clinicians is understandable although this is a burden on the pocket of patients and hospital resources.

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