

Original article

Awareness and risk factors associated with barbers in transmission of hepatitis B and C from Pakistani population: barber's role in viral transmission

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Background: In Pakistan, most patients with Hepatitis B and C have history of facial and armpit shaving from barbers.

Objective: Evaluate the awareness and risk factors associated with barbers in transmission of Hepatitis B and C.

Subjects and methods: A cross sectional survey was conducted in Rawalpindi and Islamabad, the twin capital cities of Pakistan between January and July 2009. Five hundred and eight barbershops were surveyed.

Results: Out of 508 barber shops, 99.8% and 98.2% were washing their razor with water and water plus antiseptic solution, respectively, while 99.8% were using new blades. Only 39.6% knew that hepatitis B virus (HBV) and hepatitis C virus (HCV) were viral diseases, 26.6% knew that it can lead to cancer, 90.7% thought that hepatitis could be transferred by blade sharing, 47.8% knew that a vaccine for HBV was available, and 43.0% had education beyond the primary level. None of the barbers used a new or washed apron/towel on every customer.

Conclusion: In Pakistan, a small number of barbers are shaving clients with an old style razor with a permanent blade. There is moderate awareness about the various modes of transmission of hepatitis among the barbers, and most of them don't know about vaccination. A predominant number of them are considering interferon treatment as a vaccine for hepatitis B and C.

Keywords: Awareness, barbers, hepatitis, razor

Hepatitis B and C are the main causes of severe liver disease, including hepatocellular carcinoma, cirrhosis, and end stage liver disease. The World Health Organization estimated that there are 350 million hepatitis B virus (HBV), and 170 million hepatitis C virus (HCV) infected patients worldwide [1, 2]. In Pakistan, the prevalence of HBV and HCV is 3% to 4% and 5%, respectively [3].

Health has been considered as a fundamental human right [5], and is a key factor in distribution of resources in a society [6]. Pakistan is a developing country of 180 million people with low health and educational standards. The main sources of transmission of hepatitis B and C are the non-

implementation of international standards regarding blood transfusion, reuse of needles for ear and nose piercing, reuse of needles for injections, injecting drug users, shaving from barbers, tattooing, and use of unsterilized dental and surgical instruments.

The word barber originates from the Latin word *Barba* meaning beard. A barber is a person whose occupation is to cut any type of hair, give shaves, and trim beards [6]. There is strong evidence that razors, barber's scissors, nail files and body piercing instruments are risk factors for transmission of hepatitis B and C. It is reported that hepatitis B can survive outside the body for seven days or more on tabletops, workbenches, and other instruments [7]. Barbers are also involved in circumcision, incision, and drainage of abscesses, especially in rural areas. A report showed that only 13% of them knew that hepatitis B and C are diseases of the liver, causing cancer [8].

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In the Pakistani population, there is moderate knowledge about hepatitis B and C infection whereas awareness about various associated risk factors is very low [9-11]. In a survey conducted at a family medicine clinic in Karachi, it was reported that 61.0% of participants believed that HCV is a viral disease, 49.0% believed that it can be transferred by needles and injections, 5.3% believed that it can be transmitted by ear and nose piercing, and 20.6% knew that it could cause cancer [6]. It was reported in another study that HCV awareness was only 19.0% in the IDU population of Lahore and Quetta [12]. Knowledge about hepatitis B and C infection is related to the educational background of the participants [11, 13]. Public awareness programs are required to decrease the future burden of HCV infection in the Pakistani population [14].

In this article, we evaluated the awareness and risk factors associated with barbers in transmission of hepatitis B and C, based on a cross sectional survey conducted in the twin capital cities of Pakistan. We surveyed 508 barbershops between January and July 2009.

Methods

Study setting

The study was conducted at Rawalpindi and Islamabad, the capital twin cities of Pakistan, with a population of approximately 4.5 million people [15]. The study was approved by the ethical review committee of the NUST center of virology and immunology, informed verbal consent was taken from each participant in the study, and they were assured that the information would be kept confidential.

Data collection

A simple questionnaire was designed, structured into three parts. The first part included personal information, such as name, educational status, age, experience in barbering, and marital status. The second part included questions regarding their practice; blade changing, washing of the razor with water or antiseptic solution, disposing of blades, use of potash alum on facial shaving cuts, and changing apron for every customer. The third part included questions to evaluate their awareness about HBV and HCV. These are:

“Are these viral diseases?”

“Can patients with HBV/HCV remain asymptomatic?”

“Does HBV/HCV lead to cancer?”

“Can HBV/HCV be transferred by blade sharing or using potash alum on multiple clients?”

“What is the vaccination and treatment methodology of HBV/HCV?”

“Is HBV/HCV a major disease problem in Pakistan?”

During this study, 508 barbershops were visited from both low and high socioeconomic areas of the twin cities (see **Appendix**). Data was collected between January and July 2009 by random sampling techniques.

Data analysis

Data was entered and analyzed in Microsoft Excel and SPSS 12. The percentage value of each question was calculated.

Results

Out of 508 barbershops enrolled in this study, 48.0% were aged 16-25 years, and 6.0% were aged >46 years (**Fig. 1**).

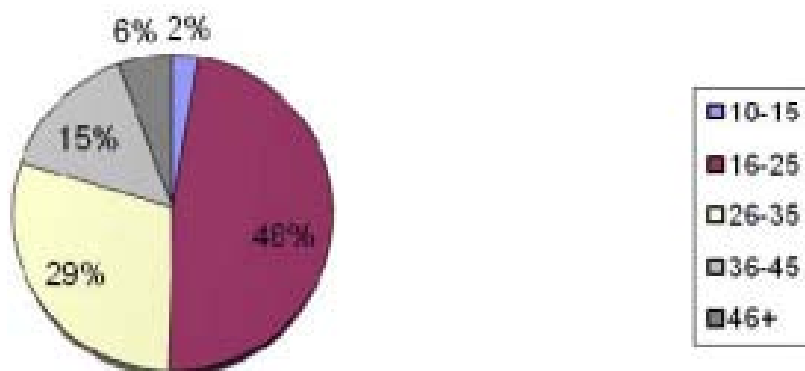


Fig. 1 Age of barber.

Most barbers had a very weak educational background, 25.0% were illiterate and only 2.0% were graduates of high schools or more. The educational background of barbers is shown in **Fig. 2**.

Most barbers (31.0%) had 6-10 years work experience, while none of them had less than two months experience (**Fig. 3**).

Most barbershops washed their razor with water and water plus antiseptic solution. Almost all of them were using a new blade on every customer. Disposing of blades with sewerage waste was a common practice, and none of the barbers used a clean apron on every customer. Common practices of barbershops are summarized in **Fig. 4**.

Potash alum use on facial shaving cuts was a common practice and a large consumption in less than one month indicated its high use with an increased load of facial shaves/cuts. Time-periods taken for the consumption of a single potash alum stone at a barbers shop is shown in **Fig. 5**.

Only 39.6% of barbers knew that hepatitis B and C are viral diseases, 26.6% of barbers knew that it can lead to cancer, 34.6% have heard advertisements about hepatitis. Only 9.8% of barbers had taken the HBV vaccine, and most people thought that allopathic therapy is the best treatment option for hepatitis. Details of awareness and related factors are summarized in **Table 1**.

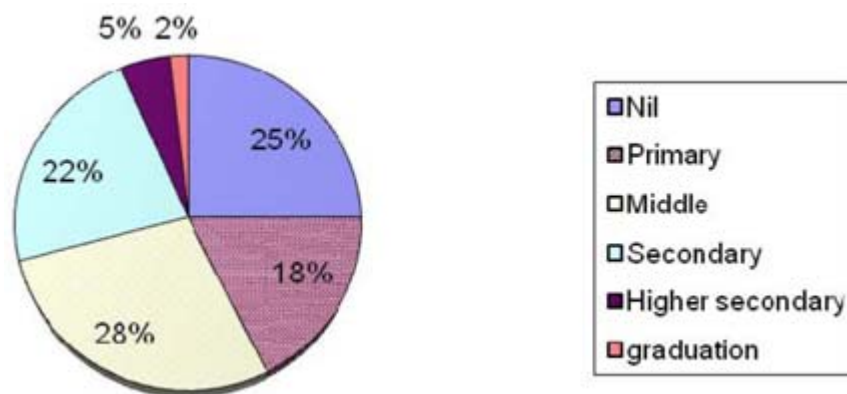


Fig. 2 Educational background of barbers.

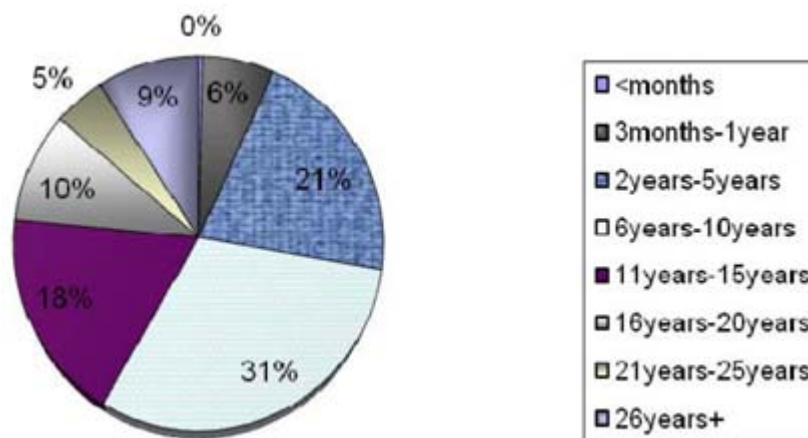


Fig. 3 Working experience of barbers.

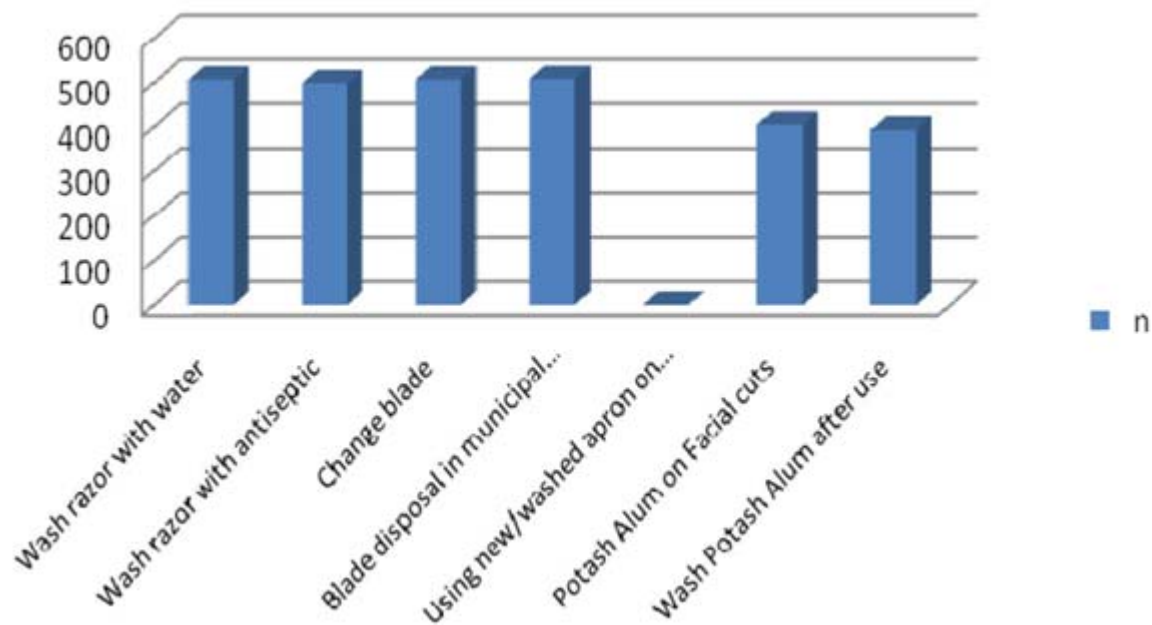


Fig. 4 Common practices of barbershops.

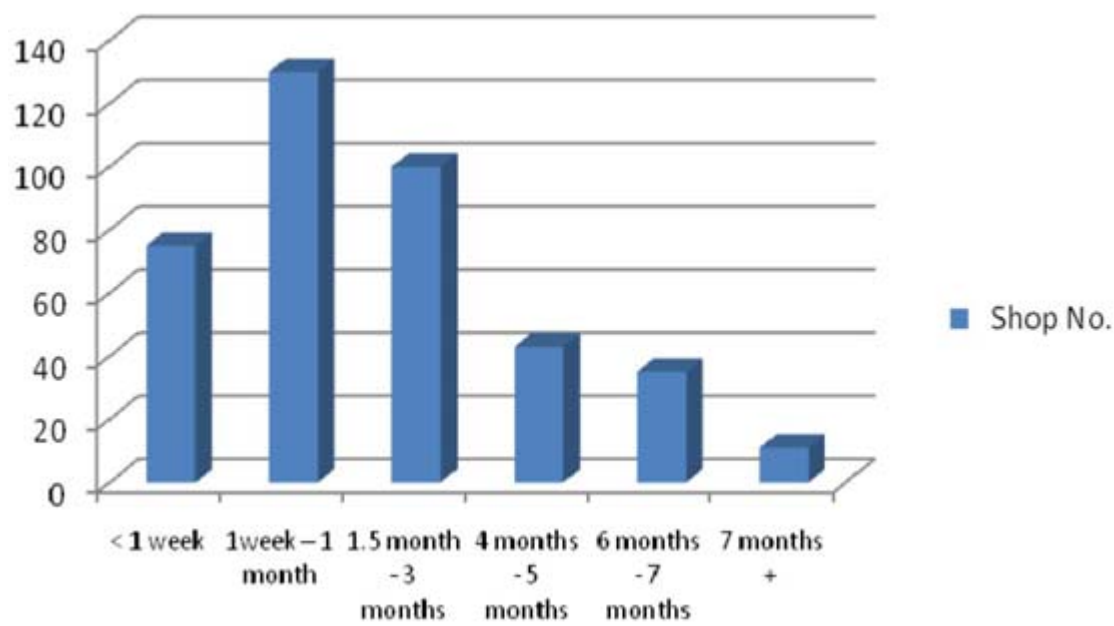


Fig. 5 Number of barber shops and the time period in which single potash alum stone is consumed.

Table 1. Awareness of barbers about HBV/HCV and related factors.

Awareness about HBV/HCV and related factors	Number	Percentage
HBV/HCV are viral diseases	201	39.6
Patient with hepatitis remains asymptomatic for long period	232	45.7
Come across advertisement about hepatitis	176	34.6
Think that main cause of HBV/HCV spread is unawareness and illiteracy	324	63.8
HBV/HCV leads to cancer	135	26.6
HBV/HCV can be transferred by using Potash Alum on multiple clients	110	21.7
HBV/HCV can be transferred by blade sharing	461	90.7
Do you think that HBV vaccine is available		
Yes	243	47.8
No	94	18.5
I don't know	121	23.8
HBV vaccine taken	50	9.8
Do you think that HCV vaccine is available		
Yes	218	42.9
No	123	24.2
I don't know	167	32.9
Which of the following is the best treatment of any disease		
Allopathic	355	69.9
Homeopathic	70	13.8
Hikmat	40	7.9
Faith healers	43	8.5
Which of the following is the best treatment for Hepatitis		
Allopathic	360	70.9
Homeopathic	60	11.8
Hikmat	47	9.3
Faith healers	40	7.87
Which of the following is major health problem in Pakistan		
HBV	54	10.3
HCV	180	35.4
HIV	51	10.0
HBV+HCV	72	14.2
HBV+HCV+HIV	133	26.2

Discussion

This survey was conducted to evaluate the awareness of barbers about HBV/HCV and various risk factors associated with their shops in viral transmission. Most barbers claimed that they were washing razors with antiseptic solution after use on every customer. It has been observed that they added only a few drops of antiseptic solution to a cup of water, dipped the razor in it for two to three seconds or just washed the razor with few drops of much diluted antiseptic solution and dried it with a grimy towel. This practice was not considered sufficient for virus eradication. It was reported from a survey conducted at Nagpur, India, that half the barbers were ignorant about the transmission of HIV by blade sharing, 54.6% of barbers were using the same blade

on multiple clients, and only 2.4% of roadside barbers were using disinfectant for washing instruments [16].

At a few barbershops, an old style razor with a fixed shaving edge was observed and some customers still insisted on being shaved with this razor. It was noticed at one barber's shop that a single blade was used for a head shave of children of a family. Use of a disposable plastic razor with a new blade was also observed at a couple of shops. This practice should be encouraged. The practice of use of a personal shaving and hair cutting kit was also observed at a single shop. Each customer was provided with a locker, in which he placed his kit after a shave or hair cut. The cost of the kit was about 1500 Pakistan Rupee (approximately 18 USD), the price is expensive and most customers can not afford it.

All the barbershops enrolled in this study disposed of used blades in municipal waste posing a major risk for sweepers and garbage handlers. In developing countries like Pakistan, the culture of searching dumps for valuable things and metals is common practice for scavengers. They are at high risk of getting infections from injuries by contaminated blades [8]. A UV sterilizer was observed at a couple of shops, but the sterilizer was present for display only.

Potash alum is potassium double sulfate of aluminum. It can be used as a natural deodorant by inhibiting the growth of bacteria responsible for body odor. Its astringent and styptic properties are often employed after shaving and to reduce bleeding in minor cuts and abrasions [17, 18]. Most (79.7%) of barbers apply potash alum stone to facial cuts. Using the same stone on multiple clients might be a risk factor for transmission of hepatitis B and C, as dark blood spots are seen on potash alum stones at many barbershops. Some barber shops have very high load of shaving customers, and a single stone is consumed in just a couple of days. There is very little time between stone uses on multiple clients. Hepatitis B may survive outside the body for seven days or more on tabletops, workbenches, and instruments [7].

It is reported from Pakistan, Japan, Egypt, Israel, USA, and Italy that HCV, and from Bangladesh, Pakistan, India, Iran, Israel, Italy that HBV can be transferred by blade sharing and barber-related instruments [5, 8, 19-26]. It was also reported from Turkey that barbers were accidentally exposed to blood and bodily fluids of their customers. Hepatitis B and C prevalence was found to be higher in the barbers from Shiva. The source of infection could not only be personal risk factors from sharp injuries and scissor cuts, but it may also include unknown factors [27].

According to Janjua and Nizamy [11], only 12.5% of barbers knew that hepatitis B and C are diseases of the liver causing hepatitis, 63.5% changed the blade for every customer, 7.2% knew that HBV can be prevented by vaccination, 18.7% were sterilizing the instruments, and 100% of them were disposing blades in sewerage waste. In our study, only 39.5% knew that HBV/HCV are viral diseases, 26.6% knew that HBV/HCV leads to cancer, and 45.7% were of the opinion that patients with HBV/HCV remain asymptomatic for a long period.

Knowledge about vaccination is very poor among the barbers. Out of 508 barbershops, 47.8% thought that a vaccine for HBV and 42.9% thought that a vaccine for HCV is available. Most barbers were considering interferon therapy as a vaccine for HBV/HCV, while only 9.8% of them have taken the HBV vaccine. In Pakistan, different modes of treatment of hepatitis are available, and most barbers thought that allopathic medicine was the best mode of treatment for hepatitis. Only 7.9% of barbers believe that faith healers have the best treatment for hepatitis. They usually tie a long thread with many knots round the neck of the patient and claim that within three months the patient is cured from hepatitis.

Barbers are paying more attention to the decoration, air conditioning, sound system, and availability of television in the shop, but they are not paying attention to the awareness and risk factors associated with their profession in the prevention of diseases. Even the barbers working in shops in posh areas have less than secondary level education. Most barbers started their practice at a very young age of 10-12 years, at such a childish age they have no idea about transmission of diseases from the instruments used. Many barbers have open-air shops; where they place a table, chair and mirror under a tree at some public place like a bus stop and start their work. This type of practice should be banned (see **Appendix**).

In conclusion, in Pakistan, a small number of barbers are shaving clients with an old style razor with a permanent blade. There is moderate awareness about the various modes of transmission of hepatitis among the barbers. Most barbers do not know about vaccination, and a predominant number of them are considering interferon treatment as a vaccine for hepatitis B and C.

Acknowledgement

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Appendix.

Different barber shops at Rawalpindi and Islamabad, Pakistan

(A) First class-airconditioned shop



(B) Second class barber (no air-conditioning)



(C) Outdoor shop with chair and mirror



References:

1. WHO Int. Hepatitis B, WHO Department of communicable diseases surveillance and response Available via: http://whqlibdoc.who.int/hq/2002/WHO_CDS_CSR_LYO_2002.2_HEPATITIS_B.pdf. Accessed 23 July 2009.
2. WHO Int. World Health Organization fact sheet, hepatitis B. Available via: www.who.int/mediacentre/factsheets/fs204/en/. Accessed 23 July 2009.
3. WHOpak.org. Pakistan country profile. Available via: www.whopak.org/pakprofile.htm. Accessed 23 July 2009.
4. Park K. Park textbook of preventive and social medicine, 18th ed. Jabalpur: Banarsidas Bhanot Publishers India; 2005.
5. Wazir MS, Mehmood S, Ahmed A, Jadoon HR. Awareness among barbers about health hazards associated with their profession. J Ayub Med Coll Abbottabad. 2008; 20:35-38.
6. wikipedia.org. Barber. Available via: en.wikipedia.org/wiki/Barber. Accessed 22 Aug 2009.
7. Thirdaye.com. Can Salons Spread Infection? Available via: www.thirdaye.com/skin-hair-nails/can-salons-spread-infection-0. Accessed 23 Jul 2009.
8. Janjua NZ, Nizamy MA. Knowledge and practices of barbers about hepatitis B and C transmission in Rawalpindi and Islamabad. J Pak Med Assoc. 2004; 54:116-9.
9. Khuwaja AK, Qureshi R, Fatmi Z. Knowledge about hepatitis B and C among patients attending family medicine clinics in Karachi. Eastern Mediterr Health J. 2002; 8:1-6.
10. Alam M, Tariq WZ. Knowledge, attitudes and practices about hepatitis B and C among young healthy males. Pak J Pathol. 2006; 17:147-50.
11. Talpur AA, Memon NA, Solangi RA, Ghumro AA. Knowledge and attitude of patients towards hepatitis B and C. Pak J Surg. 2007; 23:162-5.
12. Kuo I, Hassan S, Galai N, Thomas DL, Zafar T, Ahmed MA, et al. High HCV seroprevalence and HIV drug use risk behaviors among injection drug users in Pakistan. Harm Reduct J. 2006; 3:26.
13. Zuberi BF, Zuberi FF, Vasvani A, Faisal N, Afsar S, Rehman J, et al., Appraisal of the knowledge of internet users of Pakistan regarding hepatitis using on-line Survey. J Ayub Med Coll Abbottabad. 2008; 20:91-3.
14. Waheed Y, Shafi T, Safi SZ, Qadri I. HCV in Pakistani: a systematic review of prevalence genotypes and risk factors. World J Gastroenterol. 2009; 15:5647-53.
15. Available at en.wikipedia.org/wiki/Islamabad. Accessed 10 Sep 2009.
16. Khandait DW, Ambedekar NN, Vasudeo ND. Knowledge and practices about HIV transmission among barbers of Nagpur city. Ind J Med Sci. 1999; 53: 167-71.

17. Wikipedia.org. Potash alum. Available via: en.wikipedia.org/wiki/Potassium_alum. Accessed 31 Aug 2009.
18. Lebling R W, Pepperdine D. Natural remedies of Arabia. Saudi Aramco World. 2006; 57:12-21.
19. Sawayama Y, Hayashi J, Kakuda K, Furusyo N, Ariyama I, Kawakami Y, et al. Hepatitis C virus infection in institutionalized psychiatric patients possible role of transmission by razor sharing. Dig Dis Sci. 2000; 45:351-6.
20. Medhat A, Shehata M, Magdar LS, Mikhail N, Abdel-Baki L, Nafeh M, et al. Hepatitis C in a community in upper Egypt risk factors for infection. Am J Trop Med Hyg. 2002; 66:633-8.
21. Rotman Y, Tur-Kaspa R. Transmission of hepatitis B and C viruses – update. Isr Med Assoc J. 2001; 3: 357-9.
22. Slowik M, Jhaveri R. Hepatitis B and C viruses in infants and young children. Semin Pediatr Infect Dis. 2005; 16:296-305.
23. Mariano A, Mele A, Tosti ME, Parlato A, Gallo G, Ragni P, et al. Role of beauty treatment in the spread of parenterally transmitted hepatitis viruses in Italy. J Med Vir. 2004; 74:216-20.
24. Mahtab M, Rahman S, Karim MF, Khan M, Foster G, Solaiman S, et al. Epidemiology of hepatitis B virus in Bangladeshi general population. Hepatobiliary Pancreat Dis Int. 2008; 7:595-600.
25. Dhawan HK, Marwaha N, Sharma RR, Chawla Y, Thakral B, Saluja K, et al. Anti-HBc screening in Indian blood donors: still an unresolved issue. World J Gastroenterol. 2008; 14:5327-30.
26. Alavian SM, Fallahian F, Lankarani BK. The changing epidemiology of viral hepatitis B in Iran. J Gastrointestin Liver Dis. 2007; 16:403-6.
27. Candan F, Alagozlu H Poyraz, Sumer H. Prevalence of hepatitis B and C virus infection in barbers in Sivas region of Turkey. Occup Med. 2002; 52:31-4.
28. Homeopathy in Pakistan. Downloaded from http://www.homeopathy.com.pk/homeopathy_pakistan.php. Accessed 14 Jan, 2010.