

Seroprevalence Of HIV, HBV And HCV In Forensic Autopsies, Which Have Been Presumed To Be Low Risk, In Tehran, The Capital Of Iran

H Sanaei-Zadeh

Citation

H Sanaei-Zadeh. *Seroprevalence Of HIV, HBV And HCV In Forensic Autopsies, Which Have Been Presumed To Be Low Risk, In Tehran, The Capital Of Iran*. The Internet Journal of Pathology. 2001 Volume 2 Number 1.

Abstract

The purpose of this study is to determine whether autopsies of the corpses, which have been presumed to be low risk groups, are safe or not. Thus, we conducted a research to identify the seroprevalence of HIV, HBV and HCV in a low risk forensic autopsy population in Tehran, the capital of Iran. A total of 173 blood samples were collected from cases autopsied at the Tehran Legal Medicine Organization between September 2000 and October 2001. Eight serum samples were positive for HbsAg, and 7 of them were also positive for anti-HCV. None was positive for anti-HIV-1, 2. The authors recommend that all forensic specimens even those have been presumed to be low risk, should be treated as potentially infectious and appropriate precautions should be taken when performing necropsies.

INTRODUCTION

It is well known that dissecting rooms and forensic laboratories are high-risk areas for infection, and forensic staffs have the risk of occupational exposure to infectious agents, especially during post-mortem investigations. Spread of infection from corpses to workers may occur by the airborne or contact routes, or from a needle or sharp instrument injury (1,2,3,4). However, many forensic situations involve drug abuser and homosexuals, where the statistical risk of HIV and hepatitis infection is markedly greater than in the general autopsy population (5).

HIV, HBV and HCV share similar modes of transmission and are relatively frequent among certain high-risk groups. High risk factors for the development of HIV, HBV and HCV infections include intravenous drug abuse, male homosexuality, sexual promiscuity, vagrancy, alcoholism and/or immigration from hyperendemic regions. HBV and HCV, as well as HIV, are the major sources of worldwide public health concern (1,3). However, limited data is available regarding these risks to forensic medical personnel who are exposed daily to large numbers of severely traumatized bodies in Iran. The purpose of this study is to determine whether autopsies of the corpses, which have been presumed to be low risk groups are safe or not. Thus, we conducted a research to identify the seroprevalence of these viruses in a low risk forensic autopsy population in Tehran,

the capital of Iran.

MATERIAL AND METHODS

In a close cooperation with the Eye Bank personnel, a total of 173 blood samples were collected from cases autopsied at the Tehran Legal Medicine Organization between September 2000 and October 2001, via cardiac or femoral vessel puncture at the time of autopsy.

Before sample collection, the information about risk factors was reviewed and we randomly selected as much as possible, individuals not having risk factors.

Risk factors, which have been considered, were liver disease, history of the hepatitis and infectious disease, intravenous drug abuser, tattooing, and history of the blood transfusion.

Data concerning demographics informed by all sources were recorded for these cases that have been presumed to be low risk.

Serum samples were tested for the presence of antibodies to HBsAg, HCV and HIV-1, 2 by ELISA at the Eye Bank of I.R.Iran. HbsAg were detected using Hepanostika HbsAg Uni-Form II; antibodies to HCV were detected using UBI HCV EIA 4.0; and antibodies to HIV-1,2 were detected using Vironostika HIV Uni-Form II Ag/Ab. All testing was

Seroprevalence Of HIV, HBV And HCV In Forensic Autopsies, Which Have Been Presumed To Be Low Risk, In Tehran, The Capital Of Iran

performed according to the protocols supplied by the manufacturers. No further confirmation was done by other methods.

RESULTS

Of 173 autopsy cases, 83.2% were male, and 16.8% were female. Their ages ranged from 2 to 78, and 74.4% were 20-49 years old.

Eight serum samples were positive for HbsAg, and 7 of them were also positive for anti-HCV. None was positive for anti-HIV-1, 2.

The seroprevalences of all viruses in different age groups are shown in Table 1. The highest rate for HbsAg was among the 40-49 years of age group and also, the highest rate for anti-HCV was among the 30-39 as well as 50-59 years of age group

Figure 1

Table 1: Distribution of seropositive cases by age

Age (year)	Population	%	HBV	%	HCV	%	HIV	%
0-9	8	4.6	0	0	0	0	0	0
10-19	15	8.6	0	0	0	0	0	0
20-29	40	23.1	2	5	1	2.5	0	0
30-39	56	32.3	2	3.5	4	7.2	0	0
40-49	33	19	3	9	1	3	0	0
50-59	14	8	1	7.1	1	7.1	0	0
60-69	4	2.3	0	0	0	0	0	0
>70	3	1.7	0	0	0	0	0	0
Total	173		8		7		0	

DISCUSSION

Li et al. determined a HIV seroprevalence of 5.6% among autopsy cases in Maryland in 1993 (6) and, also du Plessis et al. reported a HIV seroprevalence of 11% in forensic medical practice in Pretoria (7).

In 2000, the reported HIV positive prevalence based on statistics of the Iranian Diseases Management Centre was 0.004% in Iran (8). We found no HIV positivities among autopsy cases in Tehran in our study.

Iran is a HBV-endemic country and in 2000, it has been estimated that 3% of the Iranian population was HBV carrier

(8). In this study, HbsAg seroprevalence is 4.6% and different from the 23.2% prevalence reported in Li et al.'s study, as well as du Plessis et al.'s study (8%). It is apparent that these differences are due to our case selection.

This prevalence (4.6%) is lower than those of the previous mentioned studies in forensic autopsy cases, but still higher than that of normal population.

Available data indicate that approximately 3% of the world's population is infected with HCV. It is estimated that as many as 170 million persons worldwide may be infected with HCV (9). In our study, the seroprevalence of antibody positivity for HCV was 4.04% and this is still higher than that of normal population.

It is not always possible to speculate on all of the risk factors, for example, because of the cultural and social restrictions, we could not take a prompt history of the homosexuality, prostitution as well as sexual promiscuity and etc.

Screening all cadavers or specimens for HIV, HBV, or HCV is impracticable because of several technical and economical reasons.

Given the wide distribution of the important infectious disease in Iranian population, routine testing for only HIV, HBV, or HCV would be inadequate as a means of awareness forensic workers for occupational risk.

Thus, all forensic specimens even those have been presumed to be low risk, should be treated as potentially infectious and appropriate precautions should be taken when performing necropsies.

Immunization and developing the skills necessary to avoid injuries will help the success of infection control.

ACKNOWLEDGEMENTS

The authors are thankful to Mr. P. Fahim and Mr. K. Bayatmakou, the I.R.I Eye Bank personnel for their assistance.

References

1. Klatt EC, Noguchi TT. AIDS and infection control in forensic investigation. *Am J Forensic Med. Pathol* 1990; 11(1):44-49
2. Babb JR, Hall AJ, Marlin R, et al. Bacteriological sampling of postmortem rooms. *J Clin Pathol* 1989;42:682-688.
3. Claydon SM. The high risk autopsy recognition and protection. *Am J Forensic Med Pathol* 1991;14(3):253-256.

Seroprevalence Of HIV, HBV And HCV In Forensic Autopsies, Which Have Been Presumed To Be Low Risk, In Tehran, The Capital Of Iran

4. Klatt EC, Noguchi TT. The medical examiner and AIDS. *Am J Forensic Med Pathol* 1988;9(2):141-148.
5. Knight B. *Forensic Pathology*, 2nd ed. London, Edward Arnold, 1996.
6. Li L, Zhang X, Constantine NT, Smialek J E. Seroprevalence of parentally transmitted viruses (HIV-1, HBV, HCV, and HTLV-I/II) in forensic autopsy cases. *J Forensic Sci* 1993;38(5):1075-1083.
7. du Plessis R, Webber L, Saayman G. Bloodborne viruses in forensic medical practice in South Africa. *Am J Forensic Med Pathol* 1999 Dec;20(4):364-8.
8. Nili A, Sigaroodi P, Javadi MA. Annual report of the Eye Bank (2000). *Journal of Ophthalmology, Bina, Scientific Journal of the Eye Bank of I.R.I.* 2001;6(3): 353-362. (printed in Persian)
9. Global surveillance and control of hepatitis C. Report of a WHO Consultation organized in collaboration with the Viral Hepatitis Prevention Board, Antwerp, Belgium. *J Viral Hepat* 1999 Jan;6(1):35-47.

Author Information

Hossein Sanaei-Zadeh, MD

Senior Resident Of Forensic Medicine, Faculty Of Medicine, Tehran University of Medical Sciences