The Curse of HIV : How Well Prepared is our Paramedical Force?

Maj Anuj Bhatnagar*, Col Rajvir Bhalwar+

Abstract

Background: HIV patient-care is determined by the knowledge and attitudes of the health care workers (HCWs) towards the disease and towards HIV-positive individuals. With increasing incidence of HIV, a need was felt to assess the preparedness of the health care providers in the Armed Forces.

Methods: A population based, cross-sectional, questionnaire based analytical study was undertaken among para medical workers in the setting of a medical college and tertiary care service hospital to assess the knowledge and attitudes of HCWs towards HIV. **Results:** The study indicated that contrary to the expectations and general belief, important knowledge gaps regarding modes of transmission, clinical course, diagnosis and management of HIV infection still exist among the paramedical workers of the Armed Forces.

Conclusions: The present study has highlighted the urgent need to review the training curriculum of our paramedical workers at all levels and undertake intensive on the job training. The study recommends that medical officers should take full responsibility for imparting correct knowledge and ensuring correct attitude among the paramedical workers.

MJAFI 2005; 61 : 230-233

Key Words: Health care workers (HCWs); HIV/AIDS; Knowledge and attitude; Armed Forces

Introduction

AIDS is a disease long associated with fear. Coupled with the fact that science till date has not been able to contain the virus, HIV elicits a strong emotional response in most HCWs. The moral panic about HIV/AIDS and the theories of deviance that go with it are not a new phenomenon. People expect HCWs to know all about the disease, but most of them experience the same fear, ignorance and prejudice as the general public [1]. Knowledge and attitude of HCWs regarding HIV/AIDS still leaves much to be desired and even after almost two decades of sustained effort, most HCWs still harbour a morbid fear of the disease [2].

Armed Forces personnel have always been considered as a high-risk group for HIV, given their unique work setting and prolonged separation from family. The prevalence of HIV infection has also increased in the services along with the rising trend in the country. In such a scenario, HCWs of the Armed Forces are often faced with a situation where they may have to care for a large number of sexually transmitted disease and HIV-reactive patients.

The specific needs of health care providers in the era of HIV infection include the spectrum of an evolving

incurable infectious disease epidemic with new concepts in patho-physiology and treatment, specific phobias generated by the epidemic, including the fear of occupational transmission of HIV, phobia of death and fear of helplessness. The wide spectrum of issues related to HIV/AIDS include the traditional role of HCWs as health information resource in the face of newly generated clinical and biopsychosocial information, often skewed by media presentation. Occupational stress associated HIV patient-care is a real thing and there is definite potential for 'burnout' among the HCWs [3]. The present study was planned to assess the knowledge and attitude of paramedical workers in the Armed Forces regarding HIV/AIDs.

Material and Methods

The present study was a cross-sectional population based analytical epidemiological design in the setting of a medical college and tertiary care hospital of the Armed Forces Medical Services between May 1999 and December 2000. Armed Forces paramedical workers of Army, Navy and Air Force undergoing training courses in various departments, formed the study population. The subjects were classified into 3 groups i.e. Public Health Assistants (HA) (health assistants from PSM Department), Laboratory workers (Lab) and Clinical paramedical workers (Nursing assistants). Minimum sample

*Officer Commanding, Station Health Organisation, Ambala Cantt, +Associate Professor, Department of Preventive and Social Medicine, Armed Forces Medical College, Pune.

size, keeping the expected parameter (proportion of HCWs with satisfactory knowledge) at 0.5 and with an acceptable deviation of 0.1 on each side at an alpha error of 0.05 (two-tailed) (i.e. acceptable 95% confidence limit 0.4 to 0.6), worked out to 100. Actually a much larger sample of 204 was studied. This included 44 Health Assistants, 66 Lab Assistants and 94 Clinical HCWs. A total of 441 HCWs were listed, out of which 33 came under the defined exclusion criteria (i.e. any HCW who was specifically trained in HIV management / himself suffering from HIV / had a close relative suffering from HIV or formed part of the pilot study). The detailed list of 408 HCWs formed the sampling frame. Simple Random Sampling procedure was followed keeping the sampling ratio 1 in 2, so as to obtain the final sample of 204. In the absence of any pre-existing valid questionnaire, a questionnaire was developed by the workers based on extensive reading, discussion with experts and peer group analysis. The draft questionnaire so developed was further standardized by a pilot study on a representative sample of 25 HCWs. The results of pilot study were not included in the final analysis. The questionnaire was administered personally by the principal worker (using the personal interview technique) who in turn was trained in administration of the questionnaire by a senior faculty member. Interviews were conducted in a quiet room and in privacy. Respondents were informed of the scope of the study and assured of full confidentiality. After initial rapport building, questions were asked by personal, face to face method of interview.

Results

(a) General awareness about HIV/AIDS:

The findings revealed that all HCWs studied had heard of AIDS and correctly knew that AIDS stood for 'Acquired Immunodeficiency Syndrome'. Similarly all HAs knew that AIDS is caused by HIV whereas 98.5% and 96.8% of Lab workers and clinical HCWs respectively knew this. Only 23.5% of HCWs overall correctly knew that 'HIV' stood for 'Human Immunodeficiency Virus'. The knowledge was least among clinical HCWs with only 8.5% responding correctly. Majority of the HCWs said that 'HIV' stood for 'Human Immuno Virus'.

(b) Knowledge about modes of transmission:

The findings are presented in Table 1. It was seen that the

majority of HCWs have correct knowledge about modes of transmission of HIV and could discriminate between the correct and incorrect modes. In general, the level of knowledge was higher among lab assistants but they were also found to have important misconceptions, especially regarding HIV transmission through coughing (4.5%), by bite of an infected mosquito (3.0%), by using public toilets (1.5%), by eating contaminated food (1.5%), by working next to an infected person (3%) and by eating in a place where the cook is infected (3%). Significant knowledge gap was found for transmission through breast milk with only 43.2% of Health Assistants, 42.4% of Lab workers and 48.9% of clinical workers exhibiting the correct knowledge. Knowledge regarding vertical transmission from infected mother to unborn child was also found to be significantly low among all groups.

(c) Knowledge about clinical course and diagnosis of HIV infection:

The findings have been presented in Table 2 and the details observed are as follows:

- (i) **Knowledge about asymptomatic HIV infection:** It was interesting that HAs (who have the least clinical exposure) exhibited correct knowledge with 88.6% giving the correct answer. On the other hand, clinical HCWs (who have the maximum clinical exposure) had the least knowledge with only 74.5% giving the correct answer. Overall, 21.1% of the HCWs did not know that HIV can exist in an asymptomatic form in a patient. However, difference in proportion was not significant.
- (ii) **Knowledge about pathogenesis of HIV:** The findings of the study reveal that a significant number of clinical HCWs (44.7%) were not aware that lymphocytes are attacked by HIV in the host. Expectedly, lab workers were found to have the highest knowledge (84.8%) but clinical HCWs had significantly low knowledge at only 55.3%. Overall more than 30% of HCWs did not have correct knowledge of pathogenesis of HIV, which is quite a bit for HCWs. The difference in the level of knowledge between the three groups was found to be very highly significant.
- (iii) **Knowledge about status of an individual tested positive by Western Blot:** It was observed that overall a large number of HCWs (42.2%) did not know that an individual

Table 1
Knowledge about the modes of transmission of HIV

Mode of transmission	HA	Lab	Clinical
By coughing	0	3 (4.5%)	0
By sexual intercourse with an infected person	40 (90.9%)	62 (93.9%)	90 (95.7%)
By taking injections from infected needles	40 (90.9%)	63 (95.5%)	90 (95.7%)
By bite of infected mosquito	0	2 (3.0%)	2 (2.1%)
By using public toilets	0	1 (1.5%)	0
By homosexual intercourse with an infected male	41 (93.5%)	64 (97.0%)	87 (92.6%)
By transfusion of infected blood	42 (95.5%)	65 (98.5%)	72 (76.6%)
From infected mother to unborn child	37 (84.1%)	60 (90.9%)	72 (76.6%)
By working next to an infected person	0	2 (3.0%)	2 (2.1%)
Eating in a place where the cook is infected	0	2 (3.0%)	3 (3.2%)
Breast feeding by an infected mother	19 (43.2%)	28 (42.4%)	46 (48.9%)

Table 2**Knowledge regarding clinical course and diagnosis of HIV infection**

	HA		Lab		Clinical		χ^2
	Corr (%)	Incorr (%)	Corr (%)	Incorr (%)	Corr (%)	Incorr (%)	
Knowledge of asymptomatic HIV infection	39 (88.6)	5 (11.4)	52 (78.8)	14 (21.2)	70 (74.5)	24 (25.5)	p>0.05
Knowledge of pathogenesis of HIV	34 (77.3)	10 (22.7)	56 (84.8)	10 (15.2)	52 (55.3)	42 (44.7)	p<0.001
Knowledge about status of Western blot positive individual	34 (77.3)	10 (22.7)	34 (51.5)	32 (48.5)	50 (53.1)	44 (46.9)	p <0.05
Knowledge about availability of confirmatory test in Armed Forces	0	44(100)	27 (40.9)	39 (59.1)	6 (6.4)	88 (93.6)	p<0.001

Corr=Correct knowledge, Incorr=Incorrect/No knowledge

Table 3**Knowledge about transmission and management of HIV infection**

	HA		Lab		Clinical		χ^2
	Corr (%)	Incorr (%)	Corr (%)	Incorr (%)	Corr (%)	Incorr (%)	
Knowledge of association between HIV & STDs	36 (81.8)	8 (18.2)	48 (72.7)	18 (27.3)	56 (59.6)	38 (40.4)	p<0.05
Knowledge about most efficient route of HIV transmission	25 (56.8)	19 (43.2)	50 (75.8)	6 (24.2)	73 (77.7)	21 (22.3)	p<0.05
Attitude towards hospital admission of a HIV positive individual	24 (54.5)	20 (45.5)	26 (39.4)	40 (60.6)	43 (45.7)	51 (54.3)	p>0.05
Fear of contagion	Not afraid	Afraid	Not afraid	Afraid	Not afraid	Afraid	p<0.001
	39 (88.6)	5 (11.4)	25 (37.9)	41 (62.1)	56 (59.6)	38 (40.4)	

Corr=Correct knowledge, Incorr=Incorrect/No knowledge

who had tested positive by Western Blot test can be labelled as HIV positive. Interestingly, the correct knowledge of Western Blot as a confirmatory test for HIV was found to be lowest amongst lab workers, i.e. only 51.5% of them knew that an individual tested positive by Western Blot test is to be diagnosed as HIV positive. The difference in the level of knowledge between the various groups was found to be significant.

- (iv) **Knowledge regarding availability of confirmatory test in Armed Forces:** It is seen that a large majority of HCWs were not aware that the confirmatory test is not available in the Armed Forces and samples are sent to National Reference Labs at Pune, Delhi and Kolkata. Knowledge was particularly low among HAs and clinical HCWs, and the difference in the level of knowledge among the groups was found to be very highly significant. This is likely to have an adverse impact on the advice they render to the patients.

(d) Knowledge about transmission and hospital management of HIV infection:

The findings are presented in Table 3 and are discussed in detail as under:

- (i) **Knowledge of the association between HIV/STDs:** From the findings it is evident that the knowledge regarding the close association between STDs and risk of acquiring HIV infection is quite low, especially among clinical HCWs (59.6%). HAs exhibited the maximum knowledge (81.8%) and the difference in the level of knowledge among the various groups was significant.

All HCWs need to be aware that the transmission potential of HIV increases many fold in the presence of concurrent STDs, because of microscopic breaks in the genital mucosa and exudates from the lesions, which is a rich source of HIV.

- (ii) **Knowledge about the most efficient route of HIV transmission:** It is evident from the findings that a significant number of HCWs studied were not aware that blood is the most efficient route for HIV transmission. Lowest knowledge was found among HAs with only 56.8% correctly identifying blood as the most efficient route for HIV transmission. Even Lab workers, expected to have a much higher level of knowledge, exhibited quite low knowledge levels with only 75.8% correctly identifying blood as the most efficient route. The difference among the 3 groups was found to be significant (P<0.05). This could possibly be because of the basic training curriculum for Lab HCWs and clinical HCWs.
- (iii) **Attitude towards hospital admission of a HIV positive individual:** It is evident that a large number of the subjects did not have the correct attitude towards hospital admission of a HIV positive individual. These HCWs felt that a person should be admitted to a hospital as soon as he is diagnosed as HIV seropositive irrespective of his clinical condition. However, the difference in the level of knowledge among the different groups was not found to be significant. The attitude displayed by the HCWs is in contravention to the ruling that a HIV sero-

positive person should continue to function normally as long as he can in the society and should be admitted to a hospital only when he develops clinical symptoms/complications of AIDS/AIDS-related complex.

- (iv) **Fear of contagion:** From the study it is seen that a substantial number of Lab and clinical HCWs were afraid of contracting HIV infection at the workplace. HAs were least afraid (11.4%), possibly due to the fact that HAs are not exposed to close patient contact in the course of their routine duties. Lab workers exhibited maximum fear to contagion (62.1%). The difference between the various groups of HCWs was found to be highly significant. It is thus evident that fear of contagion is foremost in the minds of many HCWs engaged in providing active patient-care.

Discussion

Before critically analyzing the findings of the study, it is important to mention that the study was conducted among HCWs who have a basic level of medical training and who provide patient-care as well as non-formal advice to patients regarding HIV. It has been reported that HCWs have refused to visit or treat patients with HIV. Ambulance men have voiced serious concerns about patient resuscitation and have dressed up in 'space-suits' to transport some of these patients [4]. The correct knowledge of various aspects of HIV is a must for any HCW in order to take optimal protective measures for themselves and their patients. Correct knowledge is also essential for educating the patients regarding various aspects of HIV. In general, findings of the present study are in agreement with findings of other studies by Hansen et al [5], Gellert et al [4] and Brussaferro et al [6] who also found significant gaps in the knowledge of HCWs regarding HIV/AIDS.

The present study brings out the following aspects:

- (a) Overall knowledge regarding modes of transmission is adequate. However, important gaps in knowledge were detected, especially pertaining to HIV transmission by faeco-oral, air-borne or vector-borne routes. Another important knowledge gap was found regarding mother-to-child transmission of HIV.
- (b) Significant lacunae existed in the knowledge regarding possibility of asymptomatic HIV infection in an individual, knowledge of pathogenesis of HIV, knowledge about the status of a Western Blot-positive individual and the knowledge about availability of a confirmatory test in the Armed Forces Medical Services.
- (c) Low level of knowledge was also seen regarding association between HIV and STDs and regarding blood being the most efficient route of HIV transmission.

- (d) A large number of HCWs were found to harbour a misconception that all HIV- reactive patients should be admitted to a hospital immediately on diagnosis of their seropositive status. A large number of clinical and laboratory HCWs were found to harbour fear of contagion at work place which is likely to interfere with the quality of health care delivery to the patients.
- (e) There is a need to review the training curriculum and approach for HCWs in the Armed Forces. It is recommended that the following aspects of HIV should be emphasized during the Basic Nursing Assistant Course:
 - i) Historical aspects and the evolution of HIV into a pandemic and Armed Forces Policy regarding HIV/AIDS.
 - ii) Natural history and pathogenesis of HIV, including modes of transmission of HIV.
 - iii) Diagnosis of HIV including the concept of window period, false positive and false negative results.
- f) It is further recommended that all HCWs should be exposed to HIV patient-care and diagnostic work under supervision, during their initial and refresher courses. Confidence building measures need to be initiated in the form of periodic training and re-training of all HCWs at their work place. A senior medical officer should be nominated as the training officer, who should supervise the training of all HCWs in respective hospitals. Any HCW found to have negative attitude or morbid fear of the disease should be identified and counseled avoiding ridicule or punishment.

References

1. Walsh G. AIDS: Fear of contagion among Nurses. *British J of Nursing* 1992;1(2):66-8,70-1.
2. Editorial: Why fear persists : Health Care professionals and AIDS. *J of American Medical Association* 1998;260(23):3-4.
3. Romella S, Alkiza ME, Ramon JM, Oromi J. Risk of occupational transmission of HIV infection among health care workers – study in a Spanish hospital. *European J of Epidemiology* 1996;11(2):225-9.
4. Gellert GA, Maxwell RM, Higgins KV, Barnard R, Page B. AIDS and pre-hospital personnel. knowledge and prevention of occupational exposure. *Pre-hospital disaster management* 1996;11(2):112-6.
5. Hansen K, Hansen DA, Peterson HD, Hansen PM. Hospital employees' knowledge about HIV. A study from 2 provincial hospitals. *Ugeskr laeger* 1990;152(33):2364-7.
6. Brussaferro S, Martina P, Puzzolante L, Gasparini V. Epidemiological study on knowledge, attitudes and behaviour of health care workers with respect to HIV infection. *Med Lav* 1997;88(6):495-506.