

Occupational Exposure To HIV And Practices Of Universal Safety Precautions Among Residents Doctors

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Citation

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Abstract

Background: The risk of percutaneous injury to health care workers has been well documented. Objectives: The study was to find out concern of resident doctors about acquiring HIV infection through occupational exposure. Methods: Cross-sectional exploratory Study was conducted at tertiary care teaching hospital and Medical College. Results: The average age of Resident Doctor's was 26 years \pm 3.2 years. 53 (56.9%) residents' doctors correctly knew about universal precaution. Only 29 (31.1) of resident doctors were segregating it. Of the 93 residents involved in direct patient care / laboratory services, 54 (58%) were exposed to potentially infectious material. Considerable 63 (67.7%) number of resident doctors was following dangerous procedure of either bending it against table / wall or recapping (89.2%) used needle before disposal. Conclusion: the study strongly recommends the pre-placement training in various aspects of HIV/AIDS including Universal Precaution along with refresher courses from time to time.

INTRODUCTION

HIV constitutes one of the most difficult challenges facing the healthcare profession today. As the prevalence of the HIV infection continues to rise, healthcare workers in all geographic regions can expect greater clinical exposure to patients with HIV/AIDS. (1) Morino, Baldan, Onofrio, Melotto, & Bertolaccini, 2004). HCWs over estimated their risk of acquiring HIV infection following needle stick injury, exposure of muco-cutaneous membrane and intact skin to infected blood and body fluids (2) Owotade, Ogunbodede, & Sowande, 2003). Having access to health care services can be a problem for PLWHA because health scenarios themselves can be a source of stigma. Research from early on in the epidemic evidenced that health care providers' fear of contagion and death had negative effects on their attitudes toward and treatment of PLWHA (3) HRSA, 2003). Still today, some health professionals avoid treating PLWHA and evidence of stigma continues to emerge from survey research and anecdotal reports, some studies have documented the unavailability of health services providers to treat PLWHA (4) Varas-Díaz., 2005). AIDS stigma has been documented among health services providers such as doctors, nurses, psychologists, and social workers. It has detrimental effects of the services provided and the lives of people living with HIV/AIDS (5) Ruiz-Torres, Cintrón-Bou,

& Varas-Díaz, 2007).

In the absence of statistics from India, statistics from the United States provide some insight into this occupational risk. Needle stick and other percutaneous injuries are among the most common and avoidable occupational hazards in the hospital.

Based on data from a number of prospective studies of health care workers exposed to

They are few published data that has addressed the issue of occupational exposures among resident doctors in India (6) Kermode, Holmes, Langkham, Thomas, & Gifford, 2005). The objective of the present study was to assess concern of resident doctors, attitudes and risk perception among the resident doctors of a tertiary care rural hospital attached to teaching Medical College, and to identify willingness to provide care for patients with HIV infection.

METHODS

Background: This study was conducted at state of art tertiary care teaching hospital and Medical College. The Institute has Resident Doctors in almost all departments.

Study type: This was a cross sectional exploratory study.

Sample size and Sampling: In the current session, that is 2005 - 2006, total 105 Resident doctors from all departments were enrolled in the college. It was decided to interview all the resident doctors doing their post graduation.

Data Collection: This study was conducted after the approval from the Institutional Ethical Committee. A structured, pre tested interview schedule was used to collect data. When the participants were recruited, a date for the interview was scheduled in a place of the participant's choosing. That interview was taken at private place, were it was possible to conduct without interruptions and in which the person that was interviewed felt comfortable. The postgraduates were explained about the purpose of visit and were requested to participate in the study. Those who gave written consent were interviewed. To minimize non-response and under reporting, participants were assured that the information obtained would be confidential and used only for analysis purposes. Of the 105 PGs enrolled in the college in various departments, 93 gave consent. The response rate was 88.57 %. The non-response was either they were too busy or were not interested.

During interview, apart from socio-demographic profile, information related to their concern about acquiring HIV from their patients and its effect on their carrier plans and patient care was explored. Questions regarding universal precautions and practices were also asked. Because it was expected that many respondents would report exposure during their lifetime and it was not feasible to ask about the details of exposure of their lifetime on a multiple-choice format, we asked that respondents refer only to their exposure in last six months. We focused on the exposure in last six months because we believed that this event would be the least subject to recall bias. Our goal in focusing on only exposures in last six months was that the event's specific characteristics, including the location, the type of exposure, the use of universal precautions, the patient's risk factors, and the follow-up care received by the exposed personnel, could all be analyzed in greater detail. At the conclusion of the interview and after all participants questions and concerns were addressed they were thanked for participation.

Data analysis: All data management and analysis was done using the SPSS statistical program.

RESULTS

Figure 1

Table 1: Characteristics And Occupational exposure with level of training of Resident Doctors of study participants

Characteristics	No	(%)			
Mean Age (± SE)	26±3.2 years				
Gender					
Male	59	(63.4)			
Female	34	(36.5)			
Departments					
Medicine and allied	18	(19.3)			
Surgery and allied	37	(39.7)			
Obstetrics and Gynecology	17	(18.2)			
Lab sciences: Pathology, Microbiology, biochemistry	21	(22.5)			
Non-clinical	12	(12.9)			
Year of residency					
1 st Year	37	(39.7)			
2 nd Year	29	(31.1)			
3 rd Year	27	(29.2)			
Undergone any training on HIV/AIDS and Universal precaution	15	(16.1)			
Occupational exposure with level of training of Resident Doctors					
Level of training	Number of exposure				Total
	None	Once	Twice	>Twice	
First Year	23 (62.1)	6 (16.2)	3 (8.1)	5 (13.5)	37
Second Year	12 (41.3)	7 (24.1)	3 (10.3)	7 (24.1)	29
Three Year	04 (14.81)	7 (25.9)	8 (29.6)	8 (29.6)	27
Total	39 (41.9)	20 (21.5)	14 (15)	20 (21.5)	93
Characteristics	No of Participants (%)				
Exposure while patient care					
Never	39	(41.9)			
Only once	20	(23.6)			
Twice	14	(12.9)			
More than twice	20	(21.5)			
Status of the Source					
HIV Positive	04	(07.4)			
HIV Negative	06	(11.1)			
HIV Status Un-know	35	(64.8)			
Source Unknown	09	(16.6)			
Reported the injury/exposure to authorities					
Not aware of it	09	(16.6)			
Not reported, but aware about it	20	(37)			
Yes	25	(46.2)			
Total episodes of injury	96				

Table 1: The average age of Resident Doctor's participated in study was 26 years (SE 3.2 years). Around 63% were male and around 40% were in the first year of residency. Just 16 % of them had undergone training of either HIV/AIDS and/or universal precautions. However the detail of the training program was not studied but most of them attended program of 2 days. Of the 93 residents involved in direct patient care / laboratory services, 54 were exposed to potentially infectious material. 23.6 % were exposed only once while 21.5% had exposure more than twice. In 4 of the 54 exposures the status of source was HIV positive while in significant proportion of exposure (around 64%) the status of source was unknown. In nearly 16% cases resident doctors were not aware of the source of exposure.

Figure 2

Table 2: Characteristics & Measures taken after needle injury / exposure to potentially infectious material during patient care

Characteristics	No of episodes (%)	
Exposure by		
Solid needle	26	31 (32.2)
Hollow needle	13	(27.1)
Blades/scalpel	11	(13.5)
Mucous Membrane exposure	11	(11.5)
Non-intact skin	09	(09.3)
Eye Splash	06	(06.2)
Exposure occur while		
Recapping of used needle after drawing blood	57	(59.4)
During resuscitation (CPR)	3	(3.1)
Putting intra-cath for IV line	9	(9.4)
Conducting labour	12	(12.5)
Giving Injection & Others	15	(15.6)
Place of work where the exposure occurs		
Wards	32	(33.3)
Operating room including minor operating room	17	(17.7)
Labor room	12	(12.5)
Casualty	30	(31.2)
Lab/procedure room	05	(5.2)
Personal Protective measures used at the time of exposure		
Gloves	84	(87.5)
Eyeglasses	3	(3.2)
Mask	11	(11.4)
Gowns	09	(9.3)
Measures taken	No	(%)
Reported injury to hospital authorities	25	(46.2)
Immediate measures taken (Multiple response)		
Squeeze the finger	39	(72.2)
Put the finger in mouth	12	(22.2)
Wash it soap under running tap	41	(75.9)
Irrigated with saline	09	(16.6)
Done dressing	31	(57.4)
Done ELISA test for HIV	23	(46)
Initiated post exposure prophylaxis	14	(25.9)
Initiated PEP: within 2 hours of exposure	1	(1.85)
Within 2 - 24 hours of exposure	10	(18.5)
After 24 hours of exposure	3	(5.55)
Regimen:	8	(14.8)
Taken basic regimen	6	(11.1)
Taken extended regimen	14	(100)
Completed PEP	0	(0)
PEP drugs: Provided by hospital	0	(0)
Purchased from pharmacy	14	(100)

Table 2: Out of total 96 episodes of exposure, maximum (around 32 %) were due to solid needle followed by hollow needle (27%). Around 11 % exposure occurred through mucus membrane and 6% exposure occurred due to splash of eyes.

In our study we observed that majority of exposures (59.4%) occurred while recapping. 12 exposures occurred while conducting labour and 3 occurred while CPR mainly in emergency situation. Most of the exposures (33.3%) occurred in wards during routine patient care. 17 residents were exposed in while operating (major + minor operations) and 5 exposure occurred in laboratory or procedure room.

Out of 54 who were exposed to blood or body fluids during patient care only 25 (46.2%) reported it to hospital authorities. Rest said they felt either it was not necessary or they were not aware of such procedure.

Among those who got the prick in finger, 39 (72.2%) said they squeezed the finger to let blood out and 12 (22.2%) said they put finger involuntary in their mouth. However, only 41 (75.9%) wash the injury / site with water and soap. 23 (46%) of the 53 person exposed undergone ELISA for HIV and all

of them gave negative report.

Figure 3

Table 3: Awareness and practices of universal safety precautions among resident doctors (n= 93)

Characteristics	No	(%)
Know universal precaution correctly	53	(56.9)
Use gloves while drawing blood for all patients		
□ Never	0	
□ Sometimes	58	(62.3)
□ Always	35	(37.6)
Use gloves while drawing blood of known HIV patient	93	(100)
Use gloves for routine care of HIV/ AIDS patient (Not involving drawing of blood)		
□ Never	3	(3.2)
□ Sometimes	9	(9.6)
□ Always	81	(87.1)
Dispose infectious waste in		
□ Common dustbin	58	(60.4)
□ Yellow / red bag	29	(31.1)
□ Black bag	6	(6.5)
Disposal of needle:		
□ Common dustbin	41	(44.1)
□ Yellow / red bag	21	(22.6)
□ Black bag	2	(2.1)
□ Puncture proof container	29	(31.2)
Bend use needle before disposing	63	(67.7)
Recap used needle before disposing	83	(89.2)
Put the needle in sodium hypochlorite before disposing	12	(12.9)

Table 3: Study reveals that only 53 (56.9%) residents doctors correctly knew about universal precaution. All the participants were using gloves for drawing blood of HIV positive person, while for routine care of HIV positive not involving invasive procedure almost 81 (87.1) were always using gloves. With regards to disposal of infectious waste, only 29 (31.1) of resident doctors were segregating it as per the guideline; that is in yellow dustbin. The commonest reason for not following the guidelines among those who were aware is that the facilities are not available on time.

It was also observed that, considerable 63 (67.7%) number of resident doctors was following dangerous procedure of either bending it against table / wall or recapping (89.2%) used needle before disposal. Only 12 (12.9%) said they put the needle and syringe after use in sodium Hypochlorite solution before disposing and 37% said they dispose used needle in puncture proof container.

Figure 4

Table 4: Opinion of resident doctors towards occupational hazard of HIV

Opinion	No	(%)
Want to know HIV status	72	(77.4)
HIV test to be made mandatory for all doctors		
Strongly Agree	05	(05.3)
Agree	12	(12.9)
Indifferent	23	(24.7)
Disagree	27	(29)
Strongly disagree	26	(27.9)
HIV positive doctor should not involve in direct patient care		
Strongly Agree	11	(11.8)
Agree	26	(27.9)
Indifferent	40	(43)
Disagree	12	(12.9)
Strongly disagree	4	(4.3)
Quality Patient care decreased due to fear of HIV		
Strongly Agree	19	(20.4)
Agree	23	(24.7)
Indifferent	31	(33.3)
Disagree	14	(15)
Strongly disagree	06	(6.4)
HIV issue influenced PG career choice	07	(7.6)
Care for HIV patients if given choice	63	(67.4)
Personal concern of acquiring HIV from patients		
Little concern	15	(16.1)
Significant concern	68	(73.1)
HIV test to be made mandatory for all patients		
Strongly Agree	65	(69.9)
Agree	16	(17.2)
Indifferent	09	(9.9)
Disagree	03	(3.2)
Strongly disagree	-	-

Table 4: 77.4% resident doctors were interested in knowing their HIV status and 27.9% strongly disagreed for the HIV test to be made mandatory for all doctors. But 27.9% agree that HIV positive doctor should not be involve in direct patient care. 45.1 % of the resident doctors admitted that the Quality Patient care decreased due to fear of HIV of which 20.4% strongly agreed. 67.4% if given choice would offer their services to Care for HIV patients. 73.1 %admitted of Personal concern of acquiring HIV from patients. 69.9% strongly agreed for HIV test to be made mandatory for all patients.

Figure 5

Table 5: Response & Opinion of residents doctor (n=93)

Response	No	(%)
if they were tested positive for HIV Injury / Exposure occurred		
No change in behavior	23	(24.7)
Change of profession	36	(38.7)
Change sexual behavior	56	(60.2)
Decide not marry	89	(95.6)
Opinion about teaching of HIV in medical schools		
Adequate	09	(9.8)
Inadequate	70	(75.2)
Not standardized	14	(15.1)

Table 5: We asked the response of resident doctors; what will be their behavior if they are tested positive of HIV? Around 38 % said they would change their profession. With regards to their personal life, most of them (95.6%) said they would not marry while 60 % mentioned that they would

change their sexual behavior. However, 23 (24.7%) resident doctors said there wouldn't be any change in their behavior even if they were HIV positive. Only 9 resident doctors said that the teaching of HIV/AIDS is adequate in medical college around 75 % said that is grossly inadequate and 15 % feel that the teaching about HIV/AIDS in Medical Schools need to be standardized.

As per the guidelines it is mandatory to report the occupational exposure or needle stick injury to hospital authority. We surprisingly observed that 16.6 % were not aware of it at all and 37 % knew it but don't feel it is necessary to report. 46.2 % reported the exposure to hospital authorities. In all there were 96 episodes of injury / exposure.

DISCUSSION

Our study highlighted the concern, attitudes and risk perception of HIV infection among the resident doctors of a tertiary care rural hospital attached to teaching Medical College, and to identify willingness to provide care for patients with HIV infection.

This study also focused on another perplexing issue related to sub-optimal reporting of occupational exposures. Most health-care professionals in the study appeared to be providing care to patients who were HIV-positive and complying with their ethical responsibilities despite their lack of training on HIV/AIDS and their having insufficient supplies of materials needed for treatment and prevention in the facilities where they work. Our study findings suggest that there are several factors that may contribute to such behavior by health-care professionals against people with HIV/AIDS in India. The vast majority of professionals expressed an interest in additional information and suggested education as a way to address discriminatory behaviors by their colleagues.

An immediate education of all existing clinical staff about HIV/AIDS, including modes of transmission, universal precautions, and the rights of PLWA would likely reduce the number of discriminatory practices towards PLWA and may improve these patients' care and access to health services.

This assertion is supported by previous studies that demonstrate the effect of HIV/AIDS education on health workers on their attitudes and behavior towards patients who are HIV-positive (7, 8) Uwakwe CBU, 2000; Ezedinachi, Ross, Meremiku, Essien, & Edem 2002). These studies also suggest that education about scientific matters is not likely to

be sufficient to achieve change in practice and that educational programs may also need to address attitudes and cultural beliefs.

This study further suggests that the lack of protective and other materials needed to treat and prevent the spread of HIV and related conditions contributes to discriminatory behavior.

The lack of protective materials, documented in the health facility survey and cited also by professionals as the main reason for not applying universal precautions, contributes to discriminatory behavior in two ways. First, professionals lacking adequate protection may come to fear PLWA and fear may lead to discrimination (9,10,11) Chen, Michele, Lynn, Moreland, Mafeni, & Anyamele et al 2005; Birmingham, 1998; Essien, Ross, Ezedinachi, & Meremikwu 1997). Second, lack of resources also results in differential treatment practices that may contribute to stigmatization of PLWA.

In order to do their jobs safely and effectively, health professionals must be provided with adequate supplies of essential protective materials. Further, the lack of basic medications hampers the ability of health professionals to provide appropriate treatment. Without these materials, it is unlikely that education of health professionals and implementation of anti-discrimination policies alone will have the desired impact on practice. It is likely that in other low-resource contexts, the lack of materials needed for protection of health personnel, and insufficient knowledge of health personnel about HIV/AIDS may contribute to discriminatory behavior towards people with HIV/AIDS.

The role of these factors should be investigated. While addressing these factors may not eliminate all discriminatory behavior, these basic investments in the health-care sector are likely to result in improvements.

LIMITATIONS

Although the findings of this study cannot be generalized all the tertiary care of India as a whole, it is likely that, depending on resources and training available to the health-care sector, the level of discriminatory behavior may differ in other parts of the country.

Despite efforts to ensure privacy during interviews, the lack of privacy, or concern about job status, may have resulted in an underreporting of discriminatory behavior and/or an over reporting of "correct" practices or attitudes. Although

interviewers were careful to explain that there would be no material gain or penalty to the respondent or his or her facility from participation in the study, the responses may have been inaccurate if respondents judged it in their material or political interest to exaggerate or conceal certain behaviors.

CONCLUSION

Despite these limitations, the study documents a significant proportion of resident doctors are concerned of acquiring HIV. Though Occupational exposure is high, most of them believe that the fear of HIV has not influenced their career choice but has contributed to decrease in quality care of the patient care due to fear of HIV. Most of the residents were following hazardous practices that may expose them to risk of Occupation transmission of HIV. The study identifies factors that may contribute to this behavior: lack of correct information and education about HIV/AIDS and prevention of infection, lack of protective materials needed for the practice of universal precautions, lack of materials needed to care for and treat patients with HIV/AIDS, and prevailing attitudes about PLWA. Hence the study strongly recommends the preplacement training in various aspects of HIV/AIDS including Universal Precaution along with refresher courses from time to time and provision of adequate resources to health-care facilities combined with instituting and enforcing anti-discrimination policies.

CORRESPONDANCE

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