

Original Research Article

A Study on Knowledge and Awareness of Medical Students on HIV/AIDS

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ABSTRACT

Background: Acquired Immunodeficiency Syndrome (AIDS), caused by Human Immuno deficiency Virus (HIV) remains the most infectious disease and it poses a challenge to public health system. Inadequate knowledge can act as a barrier to appropriate treatment of HIV positive patients in healthcare settings. This study was conducted to know the awareness of Medical students who are future health care providers (HCPs) and who should have complete knowledge on HIV/AIDS to reduce its morbidity & mortality as it has no vaccine or permanent cure.

Aims & Objectives:

1. To assess the knowledge and awareness of Medical students on HIV/AIDS.
2. To know the impact of duration of clinical postings of medical students in acquiring knowledge regarding HIV/AIDS.

Material & Methods: 135 students from 4th semester as Group 1 & 130 from 8th semester as Group 2 were included in the study after taking their consent. Questionnaire consists 30 of open ended items except three were administered.

Results: knowledge of Group 2 students regarding modes of transmission, vulnerable groups, symptoms, indicator diseases and opportunistic infections was higher than Group 1. All had better knowledge as unprotected sex is the important route of transmission. But around 35% only knew about vertical transmission. Awareness over testing strategies was not high among both groups.

Conclusions:

1. Group 2 participants excel in all aspects.
2. About 30-40% of students were aware that zidovudine is the drug in PEP and it should be taken within 72hrs.
3. Only 10% were aware that treatment should be started when CD4 count is below 200.
4. Both groups were well aware that HIV/AIDS has no vaccine and no permanent cure.
5. Awareness of both groups was high regarding prevention of HIV transmission by condoms.

Key words: Health care providers, HIV/AIDS, Vulnerable groups, Vertical transmission, Prevention.

INTRODUCTION

Acquired Immuno deficiency Syndrome (AIDS), caused by Human Immuno deficiency Virus (HIV) remains the most infectious disease and it poses a challenge to public health system. [1] Today's medical students are the future physicians of people living with

HIV/AIDS (PLWHA). It is therefore essential that medical students possess the appropriate knowledge regarding HIV/AIDS. [2] Inadequate knowledge can act as a barrier to appropriate treatment of HIV positive patients in healthcare settings. [3] The World Health Organization's report on the role of HIV-

related medical education in the South Asia region has also underscored the importance of including training in sensitivity, communication skills, and the development of compassionate attitudes toward HIV infected patients in the medical curricula. [4] Lack of adequate knowledge on clinical signs of HIV infection could be one of the possible reasons of many undiagnosed HIV-positive cases. [3] Medical students are strategically placed to be sensitized on the factual knowledge pertaining to HIV/AIDS transmission, clinical symptoms, and presence of opportunistic infections, post exposure prophylaxis, treatment and prevention. It is also necessary that these future healthcare workers should inculcate healthy attitude towards persons living with HIV/AIDS.

Studies in India concerning HIV-related knowledge and attitudes amongst both health professionals and medical students suggest that early educational intervention has the potential to address the gaps both in knowledge and the negative attitudes directed towards those with HIV infection. [3]

This study was conducted to know the awareness of Medical students who are future health care providers (HCPs) and who should have complete knowledge on HIV/AIDS to reduce its morbidity & mortality as it has no vaccine or permanent cure. To the best of our knowledge this study is the first one in our area.

Aims & Objectives:

1. To assess the knowledge and awareness of Medical students on HIV/AIDS.
2. To know the impact of duration of clinical postings of medical students in acquiring knowledge regarding HIV/AIDS.

MATERIALS & METHODS

Prospective and cross sectional study was conducted at RIMS Medical College, Kadapa, Andhra Pradesh in July, 2015. 135 students of 4th semester as group

1 and 130 students of 8th semester as group 2 were included after taking their consent. The aim of the study was explained to them before hand. The importance of answering the questionnaire without consultations/ discussions was stressed. A questionnaire having 30 items of closed ended except three and subjective questions were administered.

Statistical analysis: Chi- square test was used to analyze the obtained data (2X2 contingency table).

RESULTS

Regarding current affairs on HIV/AIDS- 95.5% of group 1 (129/135) and 86.15% of group 2 knew that National AIDS Day is on December 1st. 44.4% and 88.46% of group 1 and group 2 respectively expanded NACO correctly. It is only 15.5% of group 1 and 16.92% group 2 participants answered that red ribbon stands for danger and awareness. None of the participants in both groups knew about NACO slogan 2014 as shown in table 1.

Among Group 2 participants 73.84% (96/130) knew that cell receptor of HIV is CD4, but it is 42.22% in Group 1 (57/135). 23 of Group 2 and only one student in Group 1 answered correctly that p24 is the 1st antigen that appears in blood in HIV infection as shown in Table 2.

The percentage of students who answered correctly regarding various modes that transmit and not transmit HIV/AIDS, was high in Group 2 than Group 1 as shown in Table 3 and 4.

Group 2 has more knowledge regarding vulnerable groups than Group 1. Group 2 considered Commercial sex workers (CSW) as most vulnerable as shown in Table 5.

Awareness about symptoms of HIV/AIDS was more in group 2 as shown in Table 6.

Group 2 has more knowledge on testing centers and strategies as shown in Table 7.

Table 1: showing results on current affairs

Item	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
World AIDS day	129 (95.5)	112 (86.15)	241 (90.93)	7.1 (1)	<0.01
Acronym of NACO	64 (47.4)	117 (88.46)	181 (68.3)	55.49 (1)	<0.001
Red ribbon stands for	21 (15.5)	22 (16.92)	43 (16.22)	0.09 (1)	>0.5
AIDS slogan for 2014	0	0			

Table 2: showing results on knowledge about HIV

Item	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
Influence of HIV on Immunity system	80 (59.25)	101 (77.69)	181 (68.30)	10.39 (1)	<0.005
Receptor for HIV virus	57 (42.22)	96 (73.84)	153 (57.73)	27.14 (1)	<0.001
Unique enzyme in HIV virus	64 (47.4)	94 (72.3)	158 (59.62)	17.05 (1)	<0.001
1 st Antigen to appear in blood	1	23 (17.69)	24 (9.05)	23.10 (1)	<0.001

Table 3: showing results on Modes of Transmission of HIV/AIDS

Modes of transmission	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
Sexual route	96 (71.11)	119(91.53)	215 (81.13)	18.05 (1)	<0.001
Blood Transfusion	95 (70.37)	108 (83.07)	203 (76.60)	5.9 (1)	<0.05
Vertical transmission	32 (23.70)	62 (47.69)	94 (35.47)	16.64 (1)	<0.001
Contaminated needles & syringes	38 (28.14)	69 (53.07)	107 (40.32)	17.9 (1)	<0.001
All	5 (3.7)	21 (16.15)	26 (9.8)	11.6 (1)	<0.001

Table 4: showing results on modes by which HIV/AIDS is not transmitted

Modes by which HIV/AIDS is not transmitted	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
1. Touch & Hand shake	105 (77.77)	83 (63.84)	188 (70.94)	6.23 (1)	<0.02
2. Hugging	7 (5.18)	23 (17.69)	30 (11.32)	10.31 (1)	<0.005
3. Sharing of rooms, toilets & clothes	44 (32.59)	64 (49.23)	108 (40.75)	7.59 (1)	<0.01
4. Playing together	0	11 (8.46)	11 (4.15)		
5. Eating together	37 (27.40)	17 (13.07)	54 (20.37)	8.38 (1)	<0.005
6. Dry kiss	8 (5.92)	23 (17.69)	31 (11.69)	8.87 (1)	<0.005
7. Mosquito bite	12 (8.88)	23 (17.69)	35 (13.20)	4.47 (1)	<0.05

Table 5: showing results on vulnerable groups of HIV/AIDS

Name of the vulnerable group	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
Commercial sex workers	6 (4.44)	44 (33.84)	50 (18.86)	37.39 (1)	<0.001
Truck drivers	0	12 (9.23)	12 (4.52)		
Repeated blood transfusions	1	10 (7.69)	11 (4.15)	8.04	<0.005
Intra venous drug users	0	20 (15.38)	20 (7.54)		
Persons with multiple sex partners	0	11 (8.46)	11 (4.15)		
Homosexuals	0	14 (10.76)	14 (5.28)		

Table 6: showing results on symptoms of HIV/AIDS

Symptoms	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
Fever	13 (9.62)	45 (34.61)	58 (21.88)	24.18 (1)	<0.001
Diarrhea	2 (1.48)	14 (10.76)	16 (6.03)	10.06 (1)	<0.005
Weight loss	31 (22.96)	75 (57.69)	106 (40)	32.28 (1)	<0.001
Generalized lymphadenopathy	0	15 (11.53)	15 (5.66)		

Table 7: showing knowledge on HIV & AIDS Testing

Item	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
ICTC stands for	30 (22.22)	63 (48.46)	93 (35.09)	20.01 (1)	<0.001
PPTCT stands for	24 (17.77)	45 (34.61)	69 (26.03)	9.74 (1)	<0.005
Strategies for HIV testing	11 (8.14)	15 (11.53)	26 (9.81)	0.86 (1)	>0.1
Number of tests in ICTC	5 (3.7)	27 (20.76)	32 (12.07)	18.16 (1)	<0.001
Number of tests in Blood Bank	4 (2.96)	17 (13.07)	21 (7.92)	9.28 (1)	<0.005
DBS stands for	0	4 (3.07)	4 (1.5)		

Table 8: showing knowledge on Treatment & Prevention

Item	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
Drug in PEP	4 (2.96)	80 (61.53)	84 (31.69)	104 (1)	<0.001
PEP should be taken within 2hrs	1	2	3 (0)	0.37 (1)	>0.5
PEP should be taken within 72hrs	23 (17.03)	90 (69.23)	113 (42.64)	73.76 (1)	<0.001
Start treatment when CD4 count is<200	9 (6.66)	18 (13.84)	27 (10.18)	3.7 (1)	>0.05
HAART means	17 (12.59)	71 (54.61)	88 (33.2)	52.72 (1)	<0.001
Is there any drug to prevent vertical transmission- Yes	87 (64.44)	114 (87.69)	201 (75.84)	19.53 (1)	<0.001
Name of the drug to prevent vertical transmission	0	28 (21.53)	28 (10.56)		
Right choice to prevent HIV during Sex	100 (74.07)	108 (83.07)	208 (78.49)	3.17 (1)	>0.05
No Permanent cure for HIV infection	105 (77.77)	125 (96.15)	230 (86.79)	19.37 (1)	<0.001
No vaccine for HIV/AIDS	117 (86.66)	117 (90)	234 (88.30)	0.71 (1)	>0.05

Table 9: showing results on Indicator Diseases of HIV/AIDS

Name of the Disease	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
Diarrhea	2	3	5 (1.88)	0.24 (1)	>0.5
Esophageal candidiasis	2	45	47 (17.73)	49.83 (1)	<0.001
Lymphomas	1	9	10 (3.77)	6.97 (1)	<0.01
Kaposi's sarcoma	5	43	48 (18.11)	38.52 (1)	<0.001
Extensive tuberculosis	43	55	98 (36.98)	3.10 (1)	>0.05
Generalized Strongyloidosis	0	5	5 (1.88)		
PCP	0	6	6 (2.26)		
Cryptococcus meningitis	0	4	4 (1.5)		

Table 10: showing results on opportunistic Diseases in HIV/AIDS

Name of the Disease	4 th Semester Number (%) (Total no-135)	8 th semester Number (%) (Total no-130)	Both semesters Number (%) (Total no-265)	Chi –square (df)	p value
Candidiasis	15	102 (85)	117 (44.15)	121.83(1)	0.001
Tuberculosis	0	36 (30)	36 (13.58)		
Cryptococcal meningitis	0	29 (24.16)	29 (10.94)		
PCP	0	14 (11.66)	14 (5.28)		

None of Group 1 and few of Group 2 (28/130) knew that nevirapine prevents vertical transmission as shown in Table 8.

About indicator diseases, 34.07% of Group 1 (46/135) and 76.92 of Group 2 (100/130) answered. Group 2 participants mentioned extensive tuberculosis/ miliary tuberculosis (55/130) followed by esophageal candidiasis (45/130) and Kaposi's sarcoma (43/130). Majority of Group 1 (43/135) mentioned tuberculosis as shown in Table 9.

Majority of Group 2 mentioned Candidiasis as opportunistic infection followed by tuberculosis and Cryptococcal meningitis. Group 1 students knew only Candidiasis as shown in Table 10.

DISCUSSION

Acquired immuno deficiency syndrome caused by HIV has been creating a big impact on global health as it affects immune system and further leads to

many opportunistic infections. As the present medical students are the future HCPs to treat the infection, they should have complete knowledge on HIV/AIDS to provide compassionate care to PLHA and to alleviate misconceptions of society regarding HIV/AIDS.

Most of the participants in both groups in present study knew that World AIDS Day is on December 1st. It might be because of their active participation in the events conducted in the institute. But few of them knew about the significance of red ribbon.

No studies were available to compare the updated knowledge on HIV/AIDS as well as on the knowledge of receptor for HIV, unique enzyme of Retro virus, 1st antigen that appears in blood after HIV infection, indicator diseases, strategies, dried blood smear (DBS), common disinfectant used in HIV labs and when to start ART based on CD₄ count. Group 2

had better knowledge than Group 1 in the above aspects. But their awareness about DBS, commonest disinfectant used in HIV labs and NACO slogan was as poor as Group 1. Hence they too need orientation programs regarding these aspects.

In the study of Rana et al, 85% of students from applied sciences were aware that HIV has adverse effects on immune system where as it was a little less in our study. [5] Regarding transmission of HIV/AIDS by sexual route, our study has similar results as that of Shivani rao et al, and Fatima et al. [6,7] But a little less than that of Rotem et al, Ravisankar et al and Sanjay et al. [2,4,8] About blood transfusion some studies [2-4,6] showed higher percentage than our study which is similar to the results of Fatima et al. [7] Our study showed less awareness, on vertical transmission and transmission by contaminated needles & syringes, than some studies. [2, 4, 6-9]

The awareness of students in the present study regarding how HIV/AIDS is not transmitted is high, as they knew all modes like touching, handshake, hugging, sharing rooms, toilets & other things, playing & eating together, dry kiss and mosquito bite when compared to other studies where participants knew few routes. But the awareness regarding handshake, hugging, sharing rooms & toilets and mosquito bite was high in some studies than our study. [2,5,9]

28.1% of university students in a study by Fatima et al mentioned fever as symptom, where as it was 9.62% & 34.61% in Group 1 & Group 2 respectively. [7] Weight loss (40%), diarrhea (6.03%) and generalized lymphadenopathy (5.66%) were also mentioned as symptom in our study.

Awareness about vulnerable groups in our study was less than a study by Sanjay et al. [8] 17.03% in Group 1 and 69.23% in Group 2 were in view that PEP should be taken within 72hrs when compared to 8.7% & 46.7% by 2nd and 4th

years in a study by Sanjay et al. [8] Awareness of Group 2 was high as zidovudine is the drug of choice for PEP. Group 1 (64.44%) and Group 2 (87.69%) students knew that vertical transmission can be prevented. Whereas it was 46.2% among preclinical medicos in a study by Rotem et al. [2] But 28/130 of group 2 and none of group 1 knew that nevirapine is used to prevent vertical transmission.

Most of students (78.49%) in the present study knew that condoms prevent HIV transmission effectively whereas it was 77.8%, 92% and 98% in some studies. [4,6,9] Percentage of students who opined that there is no permanent cure for HIV/AIDS was similar to Ravisankar et al and Unadikie BC et al studies [4,10] but at higher percentage than the study of Arun V Joshi et al. [9] The result in the present study was similar to some studies [3,4,9] and higher than Fathima et al study [7] as there is no vaccine for HIV/AIDS at present. A study by Sanjay et al revealed that 0.6% and 42.7% of second and fourth year medicos knew that HIV testing is done at ICTC and it was 22.22% and 48.46% in group 1 and group 2 respectively in the present study. [8]

As the present study was conducted to know the real knowledge of students on HIV/AIDS, questionnaire was framed as open ended and subjective. Hence MCQs and closed ended questions were avoided. By that students have to recollect answers from their memory. That might be the reason for obtaining lesser results. But Group 2 participants had better knowledge over Group 1 regarding all aspects and more so on indicator diseases & opportunistic infections because of their long clinical exposure.

The attitude of persons towards PLHA is based on the awareness of modes of transmission and its prevention. Being future HCPs, medicos should have complete knowledge on HIV/AIDS and should be updated about recent research on diagnostic and treatment methods and on

government policies on HIV/AIDS testing strategies & treatment. Clinical orientation imparts skills of being a good & compassionate HCP whose services are the need of the hour. To achieve this it is advisable to take CME classes starting from 1st year. During clinics they should have separate postings to PPTCT, ICTC & ART centers in small groups. By that their misconceptions will be answered in a scientific way.

CONCLUSIONS

1. Group 2 participants excel in all aspects.
2. Around 35% of students knew that HIV/AIDS is transmitted vertically and few knew about nevirapine.
3. Their awareness over symptoms, indicator diseases, opportunistic infections, vulnerable groups was not so good.
4. About 30-40% of students were aware that zidovudine is the drug in PEP and it should be taken within 72hrs.
5. Only 10% were aware that treatment should be started when CD4 counts fall below 200.
6. Most of them mentioned extra pulmonary/miliary tuberculosis as indicator disease and candidiasis as opportunistic infection.
7. Both groups were well aware that HIV/AIDS has no vaccine and no permanent cure.
8. Awareness of both groups was high regarding prevention of HIV transmission by condoms.
9. Knowledge about disinfectant, strategies and DBS was poor.

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