Original Article

Knowledge Regarding AIDS Among Pre-Clinical and Clinical Medical Students

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ABSTRACT

Objectives: To assess knowledge among pre-clinical and Clinical medical students of Punjab Medical College regarding Acquired Immunodeficiency Syndrome (AIDS). **Study Design**: A Cross-Sectional Study. **Study Population:** 1435 Students of Clinical And Pre-Clinical Departments Of Punjab Medical College, Faisalabad. **Sample Size & Technique**: 101 Medical Students by Simple Random Sampling. **Study Tool**: A Pre-Tested, Semi-Structured, (Self Administrated) Questionnaire regarding knowledge about AIDS. **Study Area/ Duration:** Punjab Medical College, Faisalabad, from April - June 2009. **Results**: Awareness related to pathogenesis of AIDS among preclinical students was 71.89% & among clinical students was 77.4%.Awareness related to transmission of AIDS among preclinical students was 62.24% & among clinical students was 67.3%. Awareness related to prevention of AIDS among preclinical students was 70.06% & among clinical students was 75.63%. **Conclusion:** Clinical medical students are comparatively better informed about pathogenesis, transmission and prevention of AIDS so more attention should be provided in order to impart more clinical aspects of medical sciences to pre-clinical students. Furthermore we should try to achieve close to 100% knowledge regarding AIDS in medical students. **Key Words:** Awareness, HIV, AIDS, Pre-clinical, Clinical, Medical student.

INTRODUCTION

Acquired immune deficiency syndrome (AIDS) is a disease caused by the human immunodeficiency virus (HIV). It progressively reduces the effectiveness of the immune system and leaves individuals susceptible to opportunistic infections and cancers. HIV is transmitted through direct contact of a mucous membrane or the bloodstream with a bodily fluid containing HIV, such as blood, semen, vaginal fluid, preseminal fluid, and breast milk.[1]

This transmission can involve anal, vaginal or oral sex, blood transfusion, contaminated hypodermic needles, during pregnancy, childbirth, breastfeeding or other exposure to one of the above bodily fluids. [1]

AIDS is now a pandemic. In 2007, it was estimated that 33.2 million people lived with the disease worldwide, and that AIDS had killed an estimated 2.1 million people, including 330,000 children. [2] AIDS was first recognized by the U.S. Centers for Disease Control and Prevention in 1981 and its cause, HIV, identified in the early 1980s.[3] There is currently no vaccine or cure. Antiretroviral treatment reduces both the mortality and the morbidity of HIV infection, but these drugs are expensive and routine access to antiretroviral medication is not available in all countries.[4] Prevention of infection is a key aim in controlling the AIDS pandemic, with health organizations promoting safe sex and needle-exchange programmes in attempts to slow the spread of the virus.[4]

AIDS weakens the immune system and allows opportunistic infections. T lymphocytes are essential to the immune response and without them, the body cannot fight infections or kill cancerous cells.[5] The

symptoms of AIDS are primarily the result of conditions that do not normally develop in individuals with healthy immune systems. Most of these conditions are infections caused by bacteria, viruses, fungi and parasites that are normally controlled by the elements of the immune system that HIV damages. Opportunistic infections are common in people with AIDS. HIV affects nearly every organ system [6.] People with AIDS also have an increased risk of developing various cancers such as Kaposi's sarcoma, cervical cancer and cancers of the immune system known as lymphomas. Additionally, people with AIDS often have systemic symptoms of infection like fevers, sweats (particularly at night), swollen glands, chills, weakness, and weight loss. [7 -8]

Pneumocystis carinii pneumonia is relatively rare in healthy, immunocompetent people, but common among HIV-infected individuals. It is caused by Pneumocystis jirovecii. it is still one of the first indications of AIDS in untested individuals, although it does not generally occur unless the CD4 count is less than 200 cells per µL of blood. [9]

Tuberculosis (TB) is unique among infections associated with HIV because it is transmissible to immunocompetent people via the respiratory route, is easily treatable once identified, may occur in early-stage HIV disease, and is preventable with drug therapy. However, multi-drug resistance is a potentially serious problem.[10] Chronic diarrhea in HIV infection is due to many possible causes, including common bacterial, parasitic infections; and opportunistic infections such as cryptosporidiosis, Mycobacterium avium complex (MAC) and viruses.[11] In some cases, diarrhea may be a side effect of several drugs used to treat HIV, or of antibiotics used to treat bacterial causes of diarrhea (common for Clostridium difficile). In the later stages of HIV infection, diarrhea is thought to be a reflection of changes in the way the intestinal tract absorbs nutrients, and may be an important component of HIV-related wasting.[12]

Sexual transmission occurs with the contact between sexual secretions of one person with the rectal, genital or oral mucous membranes of another. Unprotected receptive sexual acts are riskier than unprotected insertive sexual acts, and the risk for transmitting HIV through unprotected anal intercourse is greater than the risk from vaginal intercourse or oral sex.[13]

The transmission of the virus from the mother to the child can occur in utero during the last weeks of pregnancy and at childbirth. Without treatment, the transmission rate between a mother and her child during pregnancy, labour and delivery is 25%. However, when the mother takes antiretroviral therapy and gives birth by caesarean section, the rate of transmission is just 1%.[14] The risk of infection is influenced by the viral load of the mother at birth, with the higher the viral load, the higher the risk. Breastfeeding also increases the risk of transmission by about 4 %.[15]

The diagnosis of AIDS in a person infected with HIV is based on the presence of certain signs or symptoms. Less than 1% of the sexually active urban population in Africa has been tested. Only 0.5% of pregnant women attending urban health facilities are counselled tested or receive their test results. Again, this proportion is even lower in rural health facilities. Therefore, donor blood and blood products used in medicine and medical research are screened for HIV.[16]

Many laboratories use fourth generation screening tests which detect anti-HIV antibody (IgG and IgM) and the HIV p24 antigen. The window period (the time between initial infection and the development of detectable antibodies against the infection) can vary since it can take 3–6 months to sero-conversion and to test positive. Detection of the virus using Polymerase Chain Reaction (PCR) during the window period is

possible.[17] The development of HAART as effective therapy for HIV infection and AIDS reduced the death rate from this disease by 80%, and raised the life expectancy for a newly diagnosed HIV-infected person to about 20 years. [18]

METHODOLOGY

A cross-sectional survey of medical students from first year to final year MBBS at Punjab Medical College, Faisalabad was conducted from April to June 2009. A pre-tested, semi-structured, self-administrated questionnaire regarding knowledge about AIDS was used to get the responses. The questionnaire was distributed in the class rooms and hostels. List of students was got from main office of Punjab Medical College, Faisalabad. Out of 1435, a total of 101 students were selected by Epi.Inf soft-ware. According to population size 49 students from pre-clinical and 52 from clinical classes were taken. Among pre-clinical 20 students were selected from 1st year and 29 from 2nd year. Among clinical 11 students were selected from 3rd year, 22 from 4th year and 19 students from final year, by simple random sampling technique. Informed consent was taken from the participants of the study. The data collected was entered, cleaned and analyzed by using Statistical Analysis Software (SAS) Version-9 program. Chi-square test was applied to compare proportion difference and check the association of different characteristics of Pre-Clinical and Clinical student's knowledge regarding HIV/AIDS. Confidence level was 95% and P-value <o o5. was considered significant.

RESULTS

According to table 1,2, 3 and 4 clinical medical students are comparatively better informed about pathogenesis, transmission and prevention of AIDS. The responses having P value <0.05 were of significant values.

Table 1 shows that forty-nine (100%) and 52 (100%) pre-clinical and clinical students respectively responded correctly about the word AIDS stands for, 33 (67.35%) pre-clinical students and 35 (67.31%) clinical students responded that AIDS is an infectious disease. Forty-eight (97.96%) and 47 (90.38%) pre-clinical and clinical students respectively responded correctly about the causative organism. AIDS is a global pandemic the proportions of correct answers of both pre-clinical and clinical groups are significantly different as p-value is 0.0241.Thirty-three (67.35%) and 50 (96.15%) pre-clinical and clinical students respectively responded correctly about the system of the body affected by AIDS, the proportions of correct answers of both groups are significantly different as p<0.001. About the usual lag time between the entry of HIV into the body and active manifest of disease, the proportions of correct answers of both pre-clinical and clinical groups are significantly different as p-value is 0.002.

Table 2 shows that majority of pre-clinical and clinical students responded correctly that AIDS is a lethal disease. Twenty-two (44.90%) and twenty-one (40.38%) pre-clinical and clinical students respectively responded that females tends to die at an earlier stage, which was correct. About the most common opportunistic infection in AIDS patients, 14 (28.57%) and 18 (34.62%) pre-clinical and clinical students respectively answered correctly. Thirty four (69.39%) and 32 (61.54%) pre-clinical and clinical students

Table1:
Distribution of Responses Regarding Participants' knowledge of HIV/AIDS

Category	Correct response		Incorrect response		Total Responses		P-value
	Freq.	%	Freq.	%	Freq.	%	
What does the word AIDS stands for? **Correct response.** Acquired Immunodeficiency Syndrome.							----
Pre-clinical	49	100%	0	0%	49	48.50%	
Clinical	52	100%	0	0%	52	51.50%	
Is it an infectious disease? **Correct response.** Yes.							0.997
Pre-clinical	33	67.35%	16	32.65%	49	48.50%	
Clinical	35	67.31%	17	32.69%	52	51.50%	
What is the causative organism known as? **Correct response.** Human Immunodeficiency Virus							0.1075
Pre-clinical	48	97.96%	1	2.04%	49	48.50%	
Clinical	47	90.38%	5	9.62%	52	51.50%	
Is it a global pandemic? **Correct response.** Global pandemic.							0.0241
Pre-clinical	44	89.80%	5	10.20%	49	48.50%	
Clinical	52	100%	0	0%	52	51.50%	
Which system of the body does AIDS affect? **Correct response.** Cell mediated Immunity.							< 0.001
Pre-clinical	33	67.35%	16	32,65%	49	48.50%	
Clinical	50	96.15%	2	3.85%	52	51.50%	
What is the usual time lag b/w the entry of HIV into the body and active manifest of disease? Correct response. 9-10 Years							0.002
Pre-clinical	16	32.65%	33	67.35%	49	48.50%	
Clinical	33	63.46%	19	26.54%	52	51.50%	

Table 2:
Distribution Of Responses Regarding Participants' Knowledge of HIV/AIDS Trends

Category	Correct responses.		Incorrect responses		Total Responses		P-value
	Freq.	%	Freq.	%	Freq.	%	
Is it a lethal disease? Correct response. Yes							0.4851
Pre-clinical	48	97.96%	1	2.04%	49	48.50%	
Clinical	52	100%	0	0%	52	51.50%	
Which sex of population tends to die at an earlier stage? Correct response. Females							0.647
Pre-clinical	22	44.90%	27	55.10%	49	48.50%	
Clinical	21	40.38%	31	59.62%	52	51.50%	
Which is the most common opportunistic infection in AIDS patients? Correct response. Tuberculosis							0.1541
Pre-clinical	14	28.57%	35	61.43%	49	48.50%	
Clinical	18	34.62%	34	65.38%	52	51.50%	
What is the reservoir of disease agent HIV? Correct response. Human carriers							0.4074
Pre-clinical	34	69.39%	15	30.61%	49	48.50%	
Clinical	32	61.54%	20	38.46%	52	51.50%	
Which body secretion/fluid is the common source of HIV infection to others? Correct response. Blood and semen.							0.4095
Pre-clinical	44	89.80%	5	10.20%	49	48.50%	
Clinical	49	94.23%	3	5.77%	52	51.50%	
Which is the age group most commonly affected? Correct response .20-49 years							0.6101
Pre-clinical	47	95.92%	2	4.08%	49	48.50%	
Clinical	51	98.08%	1	1.92%	52	51.50%	

Table 3:
Distribution of Responses Regarding Participants' Knowledge of HIV/AIDS Transmission

Category	Correct response.		Incorrect responses		Total Responses		P-value
	Freq.	%	Freq.	%	Freq.	%	
Which sexual intercourse, Homosexual, Heterosexual or Oral has more risk of transmission of HIV/AIDS? Correct response. Homosexual intercourse.							
Pre-clinical	47	95.92%	2	4.08%	49	48.50%	0.6101
Clinical	51	98.08%	1	1.92%	52	51.50%	
Is the agent HIV transmitted from mother to child during pregnancy? Correct response. Yes							
Pre-clinical	45	91.14%	4	8.86%	49	48.50%	0.5703
Clinical	46	88.46%	6	11.54%	52	51.50%	
Is the agent HIV transmitted from mother to child through breast milk? Correct response. Yes.							
Pre-clinical	26	53.06%	23	46.94%	49	48.50%	0.617
Clinical	25	48.08%	27	51.92%	52	51.50%	
Is HIV /AIDS transmitted by ticks \ insects and mosquitoes bites? Correct response. No							
Pre-clinical	46	93.88%	3	6.12%	49	48.50%	0.940
Clinical	49	94.23%	3	5.77%	52	51.50%	
Is there any risk to health care workers in their professional contact with HIV AIDS patients? Correct response. No							
Pre-clinical	9	18.37%	40	81.63%	49	48.50%	0.0257
Clinical	20	38.46%	32	61.54%	52	51.50%	
Is sharing razors or tooth brushes a risk factor for HIV/AIDS transmission ? Correct response. Yes							
Pre-clinical	48	97.96%	1	2.04%	49	48.50%	0.1075
Clinical	47	90.38%	5	9.62%	52	51.50%	

Table 4:
Distribution of Responses Regarding Participants' Knowledge of HIV/AIDS Prevention

Category	Correct response.		Incorrect responses		Total Responses		P-value
	Freq.	%	Freq.	%	Freq.	%	
Is there any screening test for detecting AIDS patients and carriers? Correct response. Yes							
Pre-clinical	48	97.96%	1	2.04%	49	48.50%	0.1075
Clinical	47	90.38%	5	9.62%	52	51.50%	
What is the most effective method of treatment? Correct response. Anti Retroviral therapy							
Pre-clinical	11	22.45%	38	77.55%	49	48.50%	0.001
Clinical	28	53.85%	24	46.15%	52	51.50%	
While managing the AIDS patients, will you take some preventing measures? Correct response. Yes							
Pre-clinical	44	89.80%	5	10.20%	49	48.50%	0.3018
Clinical	43	82.69%	9	17.31%	52	51.50%	
Is condom use effective in HIV/AIDS prevention ? Correct response. Yes							
Pre-clinical	46	93.88%	3	6.12%	49	48.50%	0.9402
Clinical	49	94.23%	3	5.77%	52	51.50%	
People must avoid eating with HIV infected person for HIV/AIDS prevention Correct response. NO							
Pre-clinical	44	89.80%	5	10.20%	49	48.50%	0.3018
Clinical	43	82.69%	9	17.31%	52	51.50%	
People must avoid public environment such as swimming pools, toilets and bathrooms for HIV/AIDS prevention **Correct response.** NO							
Pre-clinical	44	89.80%	5	10.20%	49	48.50%	0.3018
Clinical	43	82.69%	9	17.31%	52	51.50%	

disease agent HIV. Forty-four (89.80%) and 49 (94.23%) pre-clinical and clinical students respectively responded correctly about the body fluid/secretion that was common source of HIV infection to others. Forty-seven (95.92%) and 51 (98.08%) pre-clinical and clinical students respectively responded correctly about the age group most commonly affected.

Table 3 shows that majority of pre-clinical and clinical students responded correctly about the mode of sexual intercourse that has more risk of transmission of HIV/AIDS. Forty five (91.14%) and 46 (88.46%) pre-clinical and clinical students respectively responded correctly about HIV transmitted from mother to child during pregnancy.

Twenty-six (53.06%) and 25 (48.08%) pre-clinical and clinical students respectively responded correctly about HIV transmitted from mother to child through breast milk. Forty-six (93.88%) and 49 (94.23%) pre-clinical and clinical students respectively responded correctly about HIV/AIDS transmitted by insects bites. Nine (18.37%) and 20 (38.46%) pre-clinical and clinical students respectively responded correctly about the risk to the health care workers in their professional contact with HIV/AIDS patients. the proportions of correctly answered of both groups are significantly different as p-value is 0.0257. Forty-eight (97.96%) and 47 (90.38%) pre-clinical and clinical students respectively responded correctly about the risk of transmission of HIV/AIDS by sharing razors and tooth brushes.

Table 4 shows that majority of pre-clinical and clinical students responded correctly about the presence of screening test for detecting AIDS patients and carriers. About the most effective method of treatment. the proportions of correct answers of both groups are significantly different as p-value is 0.001. Forty-four (89.80%) and 43 (82.69%) pre-clinical and clinical students respectively responded correctly about taking some preventing measures when managing AIDS patients. Forty-six (93.88%) and 49 (94.23%) pre-clinical and clinical students respectively responded correctly about the use of condom is effective in HIV/AIDS prevention. Forty-four (89.80%) and 43 (82.69%) pre-clinical and clinical students respectively responded correctly about prevention by answering " NOT" to avoid eating with HIV infected person. Majority of pre-clinical and clinical students responded correctly about prevention of HIV/AIDS by answering " NOT" avoiding the public environment.

DISCUSSION

Currently HIV is not a dominant epidemic in Pakistan. However, the number of cases is growing. Moderately high drug use and lack of acceptance that non-marital sex is common in the society have allowed the AIDS epidemic to take hold in Pakistan, mainly among injection drug users, some male sex workers and repatriated migrant workers. AIDS may yet become a major health issue. Over all prevalence of HIV infection in adults aged 15 to 49 is 0.1%. Majority of cases go unreported due to social taboos about sex and victims' fears of discrimination. on the other hand, more detailed and recent data suggest that this may be an overestimate.

A study was carried out in the Department of Anatomy, Sindh Medical College, Karachi, in 2002 to assess the awareness of AIDS among the pre-clinical medical students, about definition, etiological agent, presentation, prevention, treatment, lymphoid organs, lymphoid cells. The majority of the students had good knowledge of definition, etiological agent and spread naming of lymphoid organs and cells but their knowledge was poor about the prevention and treatment of AIDS[19.] An other study was done at Peshawar University by a research team of Khyber Medical Peshawar from January – October, 2005. The results showed an acceptable difference among clinical, pre-clinical and non-clinical students regarding their knowledge about HIV/ AIDS. [20]

The study in hand shows that clinical medical students were comparatively better informed about pathogenesis and transmission of AIDS. Forty-four (89.80%) and 43 (82.69%) pre-clinical and clinical students respectively responded correctly about prevention of HIV/AIDS, so our results are consistent with the above national studies about AIDS, but knowledge about prevention of HIV/AIDS is better than Karachi study. A study was conducted in Tehran (Iran) by Ramezankhani A, for evaluations of students' knowledge and attitudes towards AIDS in 2004, it was found that older students had greater knowledge than younger students. [21]

In an other study by Darabi F.for Knowledge assessment of HIV/AIDS among people of Kermanshah in Iran in 2000, it was found that the level of education was significantly associated with knowledge about HIV/ AIDS.[22] The results of our

study are consistent with the above international studies about HIV/ AIDS. A study was conducted by Lanouette NM in Madagascar in 2003, about HIV/ AIDS-related knowledge, awareness, and practices, he found no significant relationship between overall knowledge scores about HIV/ AIDS and educational level [23]. So the results of our study are not consistent with the above international study about HIV/ AIDS by Lanouette NM conducted in Madagascar in 2003. Perhaps it may be due to difference in standard of education or curriculum taught in educational institutions of the two countries.

CONCLUSION

The correct answers given by pre clinical students regarding disease trends, transmission & prevention HIV/ AIDS were 71.89%, 62.24% & 70.06% and by clinical students were 77.4%, 67.3% & 75.63% respectively. It is concluded from this study that clinical medical students were comparatively better informed about pathogenesis, transmission and prevention of AIDS, so more attention should be given to impart clinical aspects of medical sciences to pre-clinical students.

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