

MODULE 24 - HIV/AIDS

OBJECTIVES

At the end of this session, students will be able to:

1. Define HIV and AIDS separately .
2. Understand how the disease is transmitted and its effects on the body.
3. To help readers understand how HIV is passed on and how the virus affects health.
4. To increase awareness among church and community leaders of their capacity to encourage a positive community response to HIV and AIDS in their local area .
5. To raise awareness among local people of the value of organising the community to take action to meet the needs caused by the impact of HIV and AIDS.

SUMMARY

AIDS (Acquired Immuno Deficiency Syndrome) occurs when the virus attacks and has been for long inside the body of the patient and it attacks the Lymphocytes i.e the Immune system. The first case of AIDS came in 1980 in New York and California. Human Immuno Deficiency Virus is a 'Lentivirus'. This virus attacks the Immune system and the name 'Lentivirus' comes from the word 'slow'. It is estimated that 33 million people worldwide are living with HIV in the year 2010 of whom 67% were in Sahara Africa. Looking to the Indian Scene, first case was encountered in 1986 in Chennai. The patient tested positive for HIV initial assessment. Patient needs careful attention and social support. In 2011 a big boon came to the world through the stem cell in occultation. The first patient cured of HIV was Timothy Ray Brown.

TRANSCRIPTION

Origin of AIDS

Friends today we are here to talk about HIV AIDS. The most Deeded Disease that we know. Let's start from the Origin of the AIDS ,where to talk about the Environmental

Impacts and Impacts of AIDS on Environment. But let's speak about the origin of the AIDS first. The origin of AIDS and HIV has puzzled the scientists ever since 1980's for over 20 years it has been the subject of Debate and People were talking about the promises flight attendant and even the suspected vaccine programme. The first recognized case of AIDS came in 1980 they came in New York and California suddenly began to develop rare infections which were and cancers which amounted to be a common Syndrome. This Common Syndrome it was discovered was because of a virus that is Human Immunity Deficiency Virus that is AIDS. We know that we can label the word AIDS 'Acquired Immuno Deficiency Syndrome' only and only when this virus attacks and has been for long inside the body of the patient and it attacks the Lymphocytes that is the Immune system and causes the Opportunistic infections to come which are not treated by common medicines and usually when the doctors say that this is something untreatable we want to test it and after testing they find that it is the HIV Human Immuno Deficiency Virus which has attacked. Basically this virus the Human Immuno Deficiency Virus is a 'Lentivirus' this virus attacks the Immune system and the name 'Lentivirus' comes from the word 'slow ' that is it takes the long time inside the patient and then manifest into the system like AIDS. Basically it was found that HIV is simian Immunodeficiency Virus that affects the Monkey's and the History goes to 30,000 years back since it is known. How HIV could have crossed the species is again one question that comes to our mind. We known that it takes a long time and we know that Chimpanzees obtain SIV this Simian Immunodeficiency Virus from two other species of the primates and the viral transfer between the animal and humans take place and this is known as "Zoonosis". Some of the most common theories that have come into play are the question that comes to the mind of everyone, that how could this HIV have cross the Species ?we know that the Chimpanzees had this virus from two other climates it has taken a very long time and however the viral transmission between animals and humans is known this is known as "Zoonosis". Some of the most common theories about Zoonosis that take place are one is the Hunter's Theory, the chimpanzees being killed and eaten and their blood getting into the Cuts and wounds on the Hunter this is one theory the oral polio vaccine has always being blamed that whenever this Oral Polio Vaccine because it is made through the animals and then it

comes to the Human Being it may have Hydrogenically that is through the medical science it must have transferred to the Human Beings. The contaminated needle theory is well known that the drug addicts usually use share the syringes and needles and the transmission occurs but it has also been noted that in Africa in 1950's when disposable syringes were not that invoke but when it started it was very convenient and with this convenience look into the burdens the financial burdens over the country may be that the same syringes must have been used over seven patients and the discrimination of disease must have occurred because the doctors usually were not that much aware that HIV can spread with that flare. The Collumunism theory, the heart of darkness theory is also proposed this was proposed in 2000 by Jim Moore an American specialist in the primates behavior. The Conspiracy theory is also invoked where it is said that it is a matter of warfare where sudden viruses are left into air or into the Human beings or into the Animals, so as to demolish the economy of sudden country or something like that and also when the small pox vaccine was in bulk to say whole of the world that may also be one of the causes of transmission of HIV is something that is apprehended. Exactly where the transfer of HIV to humans took place and where 'Epidemic' officially first developed has always been controversial. However the scientist remain keen to find the two origin of HIV. The AIDS epidemic in Haiti was there in early 1980's and medical Journals and books began to claim that AIDS had come from Haiti. Now there is one again question what cause the Epidemic to spread suddenly there are number of factors that may have contributed to the sudden spread of HIV. Most of which occurred in later half of 20th Century, one is the Blood Industry, the blood transfusion we know that when the requirement of blood is more usually the Blood banks take the step the requirement of blood is more usually the blood banks do not screen the blood and it was not being screened before 1980's in that condition also it may have spread through the blood transfusion then the drug use. We know that the people who are drug addicts because Heroine was Invoked and for a very long period we know that heroin addicts they take the drug by syringes and share the needles and syringes unknowingly and this would also have been one of the factors. We find that all the positive theory have few generalized facts, the environment that the population inhabit from time to time affects the individual habits'. The micro environment of the populations affects the

micro environment of the individual and thus the individual may get into such problems. We understand that the migration of population may be due to warfare may be due to famines, draught, floods, other natural calamities may cause such spread of the infections. Migrating habits of the inhabitants may be in such a foot , may be in such a requirements and other things also affects .Sex deprivation due to sudden conditions that may be cost in several countries and the poverty then the sugar daddy relationship cannot be ruled out however it cannot be taken elaborately at this place. The factors that fuel the spread of HIV usually are Low Literacy levels, gender disparity, unpredicted commercial sex and casual sex with multiple or non regular partners sudden traditions and ways and practices, poverty and migration, stigma leading to poor communication and marginalization of infected persons.

Disease Burden Challenges & Strategies

Now we shall talk about the disease burden, the challenges and the strategies to be followed regarding the AIDS or HIV. An estimated 33 million people worldwide are living with HIV in 2010 of whom 67% were in Sub Sahara Africa. The reason also accounts for 75% of the global AIDS deaths. Sub-Saharan in Africa is only reason in the world where Women are disproportionately affected by the HIV epidemics in comparison with Men, with the proportion hovering around 60% of last 5 years and nearly 90% of all the children living with HIV AIDS. Looking to the Indian Scene, first case was in encountered in 1986 in Chennai. 5.2 million infection estimated by the end of 2005 maximum transmission was through heterosexual sex contact that is 85% male female ratio is 3:1 that is for 3 men 1 female was infected. Heterogeneous epidemic was there that is it was affecting the general population of varieties of origin. HIV 1 subtype C is most prevalent and national prevention treatment and control programme is being instituted since 1992. Regarding the Stigma and Discrimination inadequate knowledge, poor understanding of HIV transmission and lack of awareness of Universal precautions, lack of knowledge of ARV treatment that is Anti Retro Viral treatment opportunities and availabilities, then failure of social responsibilities, irresponsible media sensitization, inadequate prevention, counseling, failure to inform those needing them

about free testing and frequent programs laps of the authorities, failure to inform and enforce the laws to protect Human Rights, etc. are there. The key challenges that the Human being is facing at this moment because of the HIV. It is scaling up of the Key HIV prevention, particularly HIV testing and counseling. Increasing access to affordable treatment in care, prevention of mother to child in transmission, identifying inevitable approaches, strengthens of weak health care delivering system, sustainable financing, for key priority Interventions. The strategies that may be defined to control the epidemic whenever it comes or it occurs in a part of the world that is awareness about the transmission, modes and preventions, promotion and practice of safe sexual behavior, screening of blood and blood products first and then institution into the body using syringes, reducing infection from mother to child, political commitment, parent support for infected and affected persons, then reducing the stigma and reducing the discrimination. The steps to be required to be taken are to provide the normative and general tools to the member states. It is the technical support to the member state that is highly required, support countries in access to managing additional resources for strengthen procurement supply. Strengthening of surveillance, monitor and evaluation system and Strengthening of capacity that is capacity building of the employees that is highly required then we have to enable the people to capacity building, maximizing the health sectors, contribution to HIV prevention, acceleration, accelerating the scale of HIV AIDS treatment and care, increasing the contribution of its program in health section, Strengthening the resource, mobilizations and partnership investing in strategic information system. We have the national aids control programme NACP which is working very smoothly, this constitutes prevention, care and surveillance. We have highest populations we have different strategies to follow their we had instituted for the low cost and care support and evidence based planning is to be done.

Prevention

Now we will talk about the prevention of the HIV for the prevention through the sexual contact. One should seek the treatment for all sexually transmitted diseases if somebody has it even the minimal of the problem one should seek medical advice for

the same, seek treatment for genetically inflammation. Use condoms for every risky sexual encounter avoid multiple sexual partners and risky partners. Practice safe, non penetrating sex, avoid combining sex with alcohol and drugs and such other steps, the vertical transmission that is from mother to child can be prevented through providing standard medical evaluation including clinical HIV disease state, evaluating the degree of Immunity in the mother, documenting the history of prior or current entry or retro viral treatment used then to discuss the known or unknown risk with the lady, educate the mother regarding available free care and refer the nearest centre the AIDS centre so that this mother is safe properly. The testing is to be done, the pre test counseling is required before testing. So that the prevention is very easy whenever a person thinks that the person may be infected about HIV, the pre test counseling is required after pre test counseling the HIV testing is done, there are three tests in three different modes and a post test counseling is also required and a follow up counseling is then given when it is known that it is a positive case. The blood bond transmission can also be prevented through blood and blood products. The screening of blood and blood products should be done. Rational use and single unit transfusion must be used and modern blood banks should be there which should give this sort of facility to promote voluntarily donation and discourage professional blood donation. Through prevention of parent to child transmission, rates of the mother to child and child transmission we know that it is 16% to 25% transmission in North America, 33% to 40% in India. The Physician should consider the counseling of HIV by the symptoms whenever they are sexually transmitted infections with individuals with the symptoms of opportunistic infections like Tuberculosis, infections come to the doctor the general practicionr should think that testing is required to be done. The individual with persistent weight loss, despite good nutrition and negative TB scores this person is mandatory required to be Tested. Laboratory diagnosis is to be made in new born below 18 months the laboratory diagnosis is made by a biological and detect the HIV infection we know it. The detection of free viral nuclearic acid, the isolation of the virus which is rarely done. These are the ways through which laboratory diagnosis is done. If the results come to be negative after testing counseling is required in this the review the meaning of the result is explained to the person. Currently there are no anti bodies to HIV in the stream does

not mean that the patient is definitely not HIV positive. Review possibility of being in the window period, window period is 90 days from the first date of infection. If the client has been exposed to the HIV, to past six months it is possible that they are infected but simply haven't begun to produce anti bodies against HIV and thus the test is negative so a re-test may be required this is to be explained to the person. The post test counseling, when the result comes positive in favor of HIV we have to explain the minimum positive anti bodies test the range of possibilities for needs of infection and distinction between HIV and AIDS, explain that you got HIV but it is not AIDS it may get converted into AIDS whenever you are Immune deficient. So prevent immune deficiency and prolong life that is the Motto of the life then. We have to encourage hope, empowerment and optimism. We have to collect patient immediately to source of care and make plan for Follow up to ensure that they have been attended. Explain safe behavior and how to protect self and others offered to provide help in disclosing status to the family, partner, etc.

Concomitant Illnesses

Now we shall talk about the illness. The word opportunistic infection that we were talking about yet that whenever a patient is infected with HIV there is a Immune Deficiency Viruses this person becomes immune compromise in the time to come, in the years to come rather and then this person again may develop sudden other infections which are very easy but can be treated by routine medicine or doctors .So HIV related infections and illnesses that are most frequently encounter in India are the bacterial infections like Tuberculosis, Respiratory, Enteric, Mycobactriosis sudden other infections. The viral infections are Herpes Simplex , Oral Leukoplakia ,Varicella Zoster Virus, Cytomegalo Virus, Human Herpes Virus, Human Papilloma Virus. The fungal infections like Candidiasis is very common, Penicilliosis, Aspergillois, Pneumocystis, JiroveciPneumonia is also there .Parasitic infections are Cryptosporidiosis, Microsporidiosis they are also common .The other illnesses which come in AIDS are AIDS Dementia, Invasive Cervical Cancer, Non Hodgkins Lymphoma ,KaposiSarcoma.The prevention of cereous infections required certain general

measure Educate patient, Prevent exposure to ill persons, Wash hands, Avoid contact with raw food soil cats bird ,Excreta litter boxes etc., Wash vegetables' , Boil drinking water, Avoid injection of raw meat, Use condoms. Vaccination as Physical for Hepatitis, Meningitis and certain other diseases can be given. Kim profile axis that can be given through certain medicines these medicines are excreted so that the disease doesn't come to the patient. Then again we have to provide the parent child transmission and all the pregnant women should be counselled and tested for HIV as early as possible. In the pregnancy they must be sent for Counselling if they are treated by private doctor they must visit an HIV aids centre that is the PPTCT that we call it and the pregnant women with no care who come for Labour that is they come for delivery directly should be tested before arrival to the labour ward but naturally we know that in India testing is not that allowed. The consent from patient after proper conselling is to be taken and after the consent the patient can be tested for HIV after testing naturally we can prevent the parent to child transmission. HIV and families if we consider, families need must be addressed when patient test positive for HIV initial assessment of Patient need with careful attention to the family setting so social support and potential barrier is to care is important and these we shall discuss in the environmental factors also, thus the patient need help to disclose to the spouse or the family members is there any concern of violence are there other family members that should be tested and will the patient require help of the NGO, certain other positive to access care of the HIV treatment this all is required to be accessed. Couple conselling should also be done. Important elements of the couple conselling are explain the mechanism of HIV transmission, Point out that prolonged latency phase of HIV infection makes it hard to pinpoint exactly when one became infected, Counsel regarding window period if one is negative, Assure them treatment is available which can allow them to remain healthy and productive, Emphasis the need to support each other to medication schedules and avoiding OIs. The occupational exposure to HIV should also be addressed that the person should not panic, should not reflexively place pricked finger into the mouth do not squeeze blood from wound, Do not use bleach, alcohol, betadine or iodine, which may be caustic and can cause trauma. What the patient do remove the gloves, If appropriate, this is usually medical people even otherwise those who are gloves in the industries and get injured

these people are also the same class should wash site thoroughly with running water better soap and water, Irrigate with water (saline if eye or mouth), Use soap, if skin wound otherwise the eyes etc. they may be wash with saline.

Cure Environmental Aspect

Now we shall talk about the cure that has been achieved in the history of medicine and the environment aspects of HIV. In 2011 a big boon come to the world through the stem cell in occulation that we have conform the first patient cured of HIV this is Timothy Ray Brown. He is HIV negative since last four years. Timothy Ray Brown, now living in the Bay Area, tested positive for HIV back in 1995, but now has entered the scientific journals as the first man in world history to have his HIV completely eliminated from his body. It's what doctors call a "functional cure". Because 100% cure is yet to be ascent. "The Berlin Patient," as Brown is known, received stem cells from a donor who was immune to HIV. Brown says being the first man to be cured of HIV makes him very, very happy. Brown is now being monitored by doctors at San Francisco General Hospital. Now we shall discuss the impacts of HIV and AIDS on social environment. The social environment is disrepute when the person is infected with HIV there are Dissolution of households, Decrease in school attendance as children leading households no longer attend the school, Destruction of community social cohesion, Stigmatism and isolation of people living with HIV/AIDS, Abandonment and abuse of women infected with HIV, Increase in numbers of street children, abuse, and sex work of orphans, Overburdening of public social support systems, Decrease in the Human Development Index, Poor morale and stress. The impacts of HIV and AIDS in economic environment are Decrease in monthly income per capita, Loss of economically active people, Loss of institutional memory of an organization, Inhibition of private sector growth, Loss of investment in due to unstable workforces, Increased costs of training and replacement, Loss of productivity, Decrease in GDP of the country. The impacts of HIV and AIDS on biophysical environment are Change in demand for natural resources as the population changes, Inability to utilize natural resources efficiently and effectively as labour resources are lost, Air, land and groundwater

pollution from health-care waste disposal, Overall impediment to sustainable development progress, Increased vulnerability of people living with HIV/AIDS to changes in the environment. The causal factors in transmission of HIV and the development of AIDS. The determines description is as follows Cultural attitudes & practices; Poverty; Civil War; Political instability. Duo to Urbanisation; Low status of women; Poor health services & limited coverage; Lack of Political will; National 'denial' . In the Individual Level Impacts are Migration; Mobility; Poor self esteem; Sexual violence; Sexual powerlessness; Little access to information; Poor access to optimal . STD care; HIV/AIDS myths; IV Drug and other substance abuse . We know that the sexual behavior also determines many things the Sexual networks (number of partners, partner change & concurrent partners); Prostitution; Survival sex; 'Sugar daddies'; Cultural practices (widow inheritance, early sexual debut, dry sex) .The Immediate Determinants of such other vulnerable things are The Biological vulnerability (young girls); STD prevalence; Low condom use ; Male circumcision; Stage of infection; Virus subtypes; Unsafe blood supply; Sharing needles are again a few more causes.

Mitigation

Suneeta Mukherjee, country representative of the United Nations Food Populations Fund (UNFPA) identifies women in the category vulnerable to climate change which could reduce income from farming and fishing in a depleted environment, possibly driving women into sex work thereby increasing the risk of HIV infection. In other words the success of climate change initiatives is intertwined with the sustained reduction of HIV infection rates. With respect to climate change however, the opportunities to create synergies are greater in some sectors such as agriculture and forestry; buildings and urban infrastructure, but are limited in others like coastal systems, energy, and health. Lorenzoni I, Nicholson-Cole S and L Whitmarsh. 2007) have noted, "it is not enough for people to know about climate change in order to be engaged; they also need to care about it, be motivated, and able to take action." Lorenzi et al signal that one of the most significant barriers to behaviour change is the perception that mitigation strategies will require drastic changes in individual lifestyles and will require considerable personal

effort. Let's bring about a paradigm shift in this perception altogether and make a move towards 'MITIGATION', with confidence. so that we may get allay from this big thing as AIDS or HIV from the society.

GLOSSARY

1. Acquired Immunity = Immunity that develops during a person's lifetime.
2. AIDS = Acquired Immunodeficiency Syndrome
3. Antibiotic = A drug used to kill or suppress the growth of microorganisms, such as bacteria and fungi.
4. Active Immunity = Immunity that develops after exposure to a disease-causing infectious microorganism or other foreign substance, such as following infection or vaccination.
5. Cardiovascular = Relating to or involving the heart and blood vessels.
6. Dendritic Cell= A type of antigen-presenting cell found in many tissues throughout the body.
7. Enzyme = A molecule, usually a protein, that catalyzes (increases the rate of) chemical reactions in the body.
8. False Negative = A negative test result that incorrectly indicates that the condition being tested for is not present when, in fact, the condition is actually present.
9. False Positive = A positive test result that incorrectly indicates that the condition being tested for is present when, in fact, the condition is actually not present. For example, a false positive HIV test indicates a person has HIV when, in fact, the person is not infected with HIV .
10. Immune System = A complex network of specialized cells, tissues, and organs that recognize and defend the body from foreign substances, primarily disease-causing microorganisms such as bacteria, viruses, parasites, and fungi.
11. Immunity = Protection against disease caused by infectious microorganisms or by other foreign substances. There are two main types of immunity: innate and acquired.

12. p24 = An HIV protein. p24 forms HIV's viral core.

13. Semen = A thick, whitish fluid that is discharged from the male penis during ejaculation. Semen contains sperms and various secretions. HIV can be transmitted through the semen of a man with HIV.

11. Xerophyte = Growing in dry condition.

12. Evergreen = A tree having green leaves throughout the year.

13. Juvenile = Young and youthful.

14. Vessel = Xylem tissue looking like a pipeline.

15. Diarch = At two places.

16. Triarch = At three places.

17. Tetrarch = At four places.

18. Secondary growth = Growth in girth

19. Xylem = Plant tissue meant for conduction of water and minerals.

20. Secondary xylem = Wood.

21. Phloem = Plant tissue meant for conduction of food.

22. Annual ring = One year's growth of wood.

23. Resin = Sticky, fragrant secretion of plants.

24. Cambium = Plant tissue meant for secondary growth.

25. Tracheid = Xylem tissue with sapta.

26. Vascular bundles = Collection of vascular tissue.

27. Cojoint = Xylem and phloem in the same vascular bundle.

- 28.Collateral = Having phloem outside xylem.
- 29.Endarch = Having first formed xylem towards centre.
- 30.Heterosporous = Having two types of spores.
- 31.Spore = A reproductive cell.
- 32.Ovule = Structure containing female gamete in plants.
- 33.Fertilisation = Causing egg to grow into a new individual.
- 34.Anatropous ovule = Inverted ovule.
- 35.Gametophyte = Gamete bearing stage of a plant.
- 36.Sporophyte = Spore bearing stage of plant.
- 37.Pollination = Transfer of pollen grain from male cone to ovule.
- 38.Archeogonium = Sex organ bearing egg or female gamete.
- 39.Embryo = Unborn offspring.
- 40.Seed = Fertilized ovule capable of developing into similar plant.
- 41.Germination = Sprouting.
- 42.Epigeal = Type of germination in which cotyledons come out in the soil.

FAQ'S

(1) What is HIV ?

Ans. HIV is the human immunodeficiency virus. It is the virus that can lead to acquired immune deficiency syndrome, or AIDS. HIV damages a person's body by destroying specific blood cells, called CD4+ T cells, which are crucial to helping the body fight diseases.

(2) What is AIDS ?

Ans. AIDS stands for Acquired Immunodeficiency Syndrome.

Acquired – means that the disease is not hereditary but develops after birth from contact with a disease-causing agent (in this case, HIV).

Immunodeficiency – means that the disease is characterized by a weakening of the immune system.

Syndrome – refers to a group of symptoms that indicate or characterize a disease. In the case of AIDS, this can include the development of certain infections and/or cancers, as well as a decrease in the number of certain specific blood cells, called CD4+ T cells, which are crucial to helping the body fight disease.

(3) How is HIV passed from one person to another ?

Ans. HIV can be detected in several fluids and tissue of a person living with HIV. It is important to understand however, that finding a small amount of HIV in a body fluid or tissue does not mean that HIV is transmitted by that body fluid or tissue. Only specific fluids (blood, semen, vaginal secretions, and breast milk) from an HIV-infected person can transmit HIV. These specific fluids must come in contact with a mucous membrane or damaged tissue or be directly injected into the blood-stream (from a needle or syringe) for transmission to possibly occur.

(4) Which body fluids transmit HIV ?

Ans. These body fluids have been shown to contain high concentrations of HIV:

- blood
- semen
- vaginal fluid
- breast milk
- other body fluids containing blood

The following are additional body fluids that may transmit the virus that health care workers may come into contact with:

- fluid surrounding the brain and the spinal cord
- fluid surrounding bone joints
- fluid surrounding an unborn baby

(5) How well does HIV survive outside the body ?

Ans. Scientists and medical authorities agree that HIV does not survive well outside the body, making the possibility of environmental transmission remote. HIV is found in varying concentrations or amounts in blood, semen, vaginal fluid, breast milk, saliva, and tears. To obtain data on the survival of HIV, laboratory studies have required the use of artificially high concentrations of laboratory-grown virus. Although these unnatural concentrations of HIV can be kept alive for days or even weeks under precisely controlled and limited laboratory conditions, CDC studies have shown that

drying of even these high concentrations of HIV reduces the amount of infectious virus by 90 to 99 percent within several hours. Since the HIV concentrations used in laboratory studies are much higher than those actually found in blood or other specimens, drying of HIV-infected human blood or other body fluids reduces the theoretical risk of environmental transmission to that which has been observed—essentially zero. Incorrect interpretations of conclusions drawn from laboratory studies have in some instances caused unnecessary alarm.