**450 MIC Course: Medical Virology** 

### **Lecture Twelve**

# **Viruses of Medical Importance**

4- Human Immunodeficiency Virus (HIV) – part II

## By

امعة

لملك سعود King Saud University

# **Dr. Mohamed A. Farrag**

Assistant professor of Virology

Botany and Microbiology Dept., KSU



### Learning outcomes

By the end of this lecture students should

 $\succ$  Know the history of HIV/AIDS (Done).

Have the knowledge HIV epidemiology and modes of transmission.

Recognize different symptoms associated with HIV/AIDS.



> Be aware of different ways for prevention and control measures.

### Mode of transmission:

- Direct contact with infected body fluids, including blood and blood products, semen, vaginal and cervical secretions, amniotic fluid, and breast milk.
  - Blood transfusion.
  - Sexual contact (typical atypical).
- Use of contaminated tools (needle injection tattooing)
- Mother to child (during pregnancy or birth breastfeeding)
- Despite detection of HIV-1 RNA in saliva and tears, there have been no documented cases of transmission via these body fluids.

### **Mode of transmission – Sexual Transmission**

- Transmission most commonly occurs during sexual contact with the exchange of semen, genital secretions, or blood from an infected individual to the uninfected partner.
- Anal intercourse, with associated mucosal trauma, carries the highest risk of sexual transmission.
- In the majority of instances, heterosexual transmission occurs during vaginal intercourse, although cases have occurred after fellatio.
- Sexual transmission is facilitated by the presence of underlying sexually-transmitted diseases which disrupt the integrity of the skin or mucosal linings:

Chancroid, herpes genitalis, and syphilis.

### How You DON'T Get HIV

You CANNOT get HIV by hugging, touching, living with or caring for someone with HIV, shaking hands or kissing.



You CANNOT get HIV from eating out of the same plate or cup or utensils that an HIV positive person uses.





#### Mode of transmission: Video



### **Pathology and Clinical Picture**

#### AIDS has three phases with different clinical symptoms

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#### 1- Primary/acute Infection

- Incubation period: 2-4 weeks
- <u>Symptoms</u>: Flu-like illness (lasts from days to weeks)

Fever – sore throat – headache – joint pain – rashes –Diarrhea – mouth/genital ulcers – swollen lymph nodes.

<u>Virus concertation</u>: high in the blood
<u>Transmission</u>: Very active



#### 2- Chronic latent Infection – asymptomatic

- After the primary phase of infection.
- <u>Symptoms</u>: No specific signs persistent swelling of lymph nodes. (lasts for 8-10 years; may be longer)
- Virus concertation: very little (the virus is latent in white blood cells)
- Transmission: Active (low level)

3- Progression to AIDS

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- Usually develop after 8-10 years of latency.
- The virus destroys the immune system and the individual becomes susceptible for opportunistic infections.
- Symptoms: Rapid weight loss Profuse nigh sweet – Chronic diarrhea – Fever and chills for weeks – Persistent fatigue – Headache – pneumonia – skin rashes – Persistent white or colored spots on month, tongue, anus or genitals – Memory loss – vision disorders ... etc.

#### **1- Oncologic Complications**

- Kaposi's Sarcoma (Herspesvirus-8).
- Cervical cancer (human papillomavirus).
- Anal carcinoma, liver cancer, and stomach



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#### 2- Opportunistic infections

Oral candidiasis, pneumococcal infections, recurrent reactivation of herpes simplex virus, varicella zoster, dermatophyte infections, pityariasis.

CD4 count falls below 100 cells/µl.



Normal lung

Pneumocystis jirovecii cysts in tissue

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Infected lung

#### **1- Oncologic Complications**

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- Cervical cancer (human papillomavirus).
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#### 2- Opportunistic infections

Oral candidiasis, pneumococcal infections, recurrent reactivation of herpes simplex virus, varicella zoster, dermatophyte infections, pityariasis.

#### **1- Oncologic Complications**

- Kaposi's Sarcoma (Herspesvirus-8).
- Cervical cancer (human papillomavirus).
- Anal carcinoma, liver cancer, and stomach



Cytomegalovirus retinitis CD4 count falls below 50 cells/µl.

#### 2- Opportunistic infections

Oral candidiasis, pneumococcal infections, recurrent reactivation of herpes simplex virus, varicella zoster, dermatophyte infections, pityariasis.

#### **1- Oncologic Complications**

- Kaposi's Sarcoma (Herspesvirus-8).
- Cervical cancer (human papillomavirus).
- Anal carcinoma, liver cancer, and stomach

# Oral candidiasis, pneumococcal infections, recurrent reactivation of herpes simplex virus, varicella zoster, dermatophyte infections, pityariasis.

#### **3- Cardiovascular complications**

2- Opportunistic infections

HIV-1-infected patients have increased risk of myocardial infarction.

Increase in plasma levels of soluble markers of inflammation and coagulation like interleukin-6 (IL-6), high-specificity C-reactive protein (hsCRP),

