

Human Retroviruses (16)

Genome: +ssRNA, linear, (7-11)KBP, diploid / Enveloped

contain RNA directed DNA polymerase also called RT

RNA → DNA

Some important genes: pol, env, pro and gag

- * Infection do not kill infected cell cause latent infection
- * Many members are tumor viruses

We can classify retroviruses into 2 type based on their behavior:

- ① Exogenous
- ② Endogenous (nonpathogenic)

was

HIV

Human Immunodeficiency virus

HIV-1 common worldwide

HIV-2 (endemic in africa)

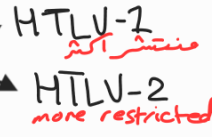
4 Groups



N M → cause HIV pandemic from SIV from chimpanzee

HTLV

Human T Lymphotropic virus



Transmission: The most common one
 ① Vertical transmission (breast or Placentally milk)
 ② Sexually ③ Blood.

Pathogenesis:

- ① HTLV infect & stimulates both mitosis and immortalize T lymphocytes.
- ② The virus become integrated in the host cell as provirus.
- ③ over a period of many years, the infected T cell accumulate many chromosomal aberrations → leading to **malignant phenotypes**.

The viral Tax gene is the critical viral onco-protein.

Clinical manifestations: Mostly Asymptomatic (HTLV-1) associated disease:

- 1- Adult-Tcell leukemia.
- 2- Cutaneous Tcell lymphoma
- 3- Hairly cell leukemia (HTLV-2)
- 4- HTLV associated myelopathy topical spastic paraparesis

Diagnosis

- * ELISA
- * Western blot.

Treatment

* Aggressive chemotherapy for prevention screening of blood unit can be done vaccines are tested.

Transmission

- 1- Heterosexual transmission
- 2- Men homosexual
- 3- Vertical transmission
- 4- Injection drug abuse (IDA)
- 5- Blood brone

Pathogenesis

- 1- HIV infect mainly CD4⁺T cell and it can infect macrophages & DC through (gp120)
- 2- The infection begins locally for 10 days before systemic spread
- 3- → lymphoid tissue (gut-associated lymphoid tissue) → Blood (viremia) which remains at high levels for about (8-12) weeks
- 4- The adaptive immune system response take over at this stage to control viral replication → viral load decline (viral-set-point) which is important prognostic marker
- 5- clinical latency (3-20) years - avg (8-10) years.
- 6- AIDS when the CD4⁺ count is less than 200/μL / AIDS ≠ HIV infection

Diagnosis

HIV-2 / HIV-1 (group M, N, P, O) → screening relies on enzyme immune assays with fourth generation assays combining the detection of Ab's with detection of p24. followed by confirmatory test mostly western blot or detection of HIV-1 RNA

Treatments

Combination of antiretroviral drugs ART classified into 6 classes

NRTI: Zidovudine, Didanosine, Stavudine, Lamivudine, Abacavir, Tenofovir, Emtricitabine

PI: Saquinavir, Indinavir, Nelfinavir, Atazanavir, Tipranavir, Darunavir

NNRTI: Nevirapine, Delavirdine, Efavirenz, Etravirine, Rilpivirine

Integrase Inhibitors: Raltegravir, Dolutegravir and Etravirine

Fusion Inhibitor: Enfuvirtide

CCR5 Antagonist: Maraviroc

تم اعطاء 3 انواع من الأدوية الرئيسية (1) كالتالي:
 المجموعة 1: مثبطات نوكليوتيد العكسي (NRTI) - وهي تستخدم مع
 مثبطات البروتياز (PI) او مثبطات الانتيجرافيز (NNRTI) او مثبطات اندماج الفيروس (FI).

Management

For management of the HIV-1 infected Individual CD4 Tcell count and plasma viral load measurement. The cornerstone of HIV-1 management is so called HAART

Rosa Abuarab.

