Infosheet #23 *from the series* ***"For a Better QL of PLWHA!"***

PAVING THE WAY TO A CURE OF HIV INFECTION!?

(the **XVIII CROI:**
Conference on **Retroviruses** and **Opportunistic Infections**,
Boston, II. 2011)

(translated from Latvian)

One of the most important this CROI's themes was interventions to reduce transmission.
Unfortunately, no hands- on methods or drugs for HIV medicine were offered. Instead, several promising medications and technologies are being studied.

As already mentioned in the previous info- sheets, the most perspective in AIDS field could be genetics.
And the most exciting news from this CROI is connected to it. Some are even speaking about the **first step in finding a cure**. HIV therapy with ARV drugs is effective to control viremia, however it has not shown promise to eradicate the viral reservoir, leading to the necessity for life- long therapy (oral abstract 165). Previous CD4 adoptive transfer therapies showed limited persistence of the infused cells. American scientists hypothesized gene modification of circulating CD4 cells may make them resistant to HIV (o.46). Berlin patient's case suggests that genetically engineering a patient's own stem cells could be used as a long- term strategy to control HIV-1. ZFN (Zinc finger nuclease)- engineered stem cells can support the production of HIV- resistant T cells that are ultimately able to maintain CD4 T cells (and significantly reduce virus levels). This ability should allow the development of combinatorial anti- HIV genetic therapies based on the ZFN platform (o.164). An adoptive therapy clinical trial using this platform is currently ongoing. Its results represent an important step toward the long- term goal of engineering an HIV- resistant immune system by genetic technology (o.47).
Up to 10% of people who respond virologically may fail to generate a sufficient immunological response (CD4>500) to HAART.
The intervention in trial participants who were successfully treated with HAART but whose CD4 count remained 200-500 led to increases in CD4 cell counts of ~200 cells that were sustained for a year!

Current low CD4 count post- treatment may be associated with senescence (poster abstract 269), and delayed initiation of HAART correlates to reduced likelihood of normalising CD4 counts (>500).

BMS-663068 may become a potential **first- in- class** oral HIV attachment **inhibitor** (AI) being developed for treatment of HIV- infection. It may become the first drug working on the first stage of virus intruding the cell. After 8 days its use resulted in a substantial decline in HIV RNA with increases in CD4 cell counts. The most frequent adverse events included headache (44%) and rash (16%), mostly mild; but there were no drug discontinuations (o.49).

Good news for multi- resistant patients. While raltegravir (RAL) generally works well in people with multiple drug resistance, some of them still develop integrase inhibitor resistance. These are usually patients with few other treatment options waiting for new drugs.
A novel integrase inhibitor dolutegravir (DTG) was demonstrated in subjects with RAL resistance. DTG continued to show activity against RAL- resistant virus and was generally well tolerated in this ongoing GSK study (o.151LB).

The loss of muscle mass and fat accumulation is natural for the process of aging. Unintentional loss of weight and muscle due to aging and disease has been associated with increased mortality. Wasting and weight loss occur in HIV infection even in the modern era of effective ART.
After 5 years of follow- up in FRAM study, HIV- infected participants with arm skeletal muscle in the lowest tertile had a mortality rate of 23%, compared with 11% and 8% of those in the middle and highest tertiles. **Lower arm** skeletal muscle, lower **leg skeletal muscle**, and **higher visceral** were each independently **associated with increased mortality** (0.76)
AIDS treatment activists' point is that we see lesser patients with lipoatrophy since the use of Zerit (D4T) has almost completely stopped and also due to the fact that people are changing their backbone NRTIs. Same goes for lipodystrophy (fat accumulation in the stomach area) PIs being better tolerated.

It is finally time to give a precise **definition of lipodystrophy**: it is a condition of abnormal fat redistribution that can lead to either lipohypertophy (fat accumulation in specific areas of the body such as the neck, belly, upper torso, and breasts) or lipoatrophy (fat loss in the face, buttocks, arms and legs) ("GMHC Treatment Issues", vol.21, # 3 & 4).

Vitamin D insufficiency (see info- sheets #20, 22) is frequent in the general population as well as in HIV- infected patients. Patients on ARV therapy are at higher risk of vitD deficiency than ARV- naïve patients with an increased risk in patients receiving EFV or ZDV. VitD levels are lower in women, smokers, with body mass index increase, in winter vs fall, and higher in ARV- naïve patients and with higher CD4 nadir. No effect was found for age, time since HIV diagnosis, HBV/HCV co- infection, CD4 cell count, duration of ART or lipodystrophy history (p.826). The latest news: vitD "cares" for longevity! Unfortunately, there is no evidence that supplementation leads to any clinical improvements in any population (CFAR Symposium on HIV Infection, Inflammation, and Premature Aging, 2010).

The usually provocative Carl Grunfeld at the same symposium has said that **HIV does not "accelerate" aging**.

News from other materials: it is already **feasible to prove ones source of getting HIV infected!**

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