Minimizing fat loss—comparing nukes

The loss of the fatty layer under the skin (subcutaneous fat) is known as lipoatrophy. This side effect is generally associated with the use of certain nukes, particularly the following:

- d4T – stavudine (Zerit)
- AZT – zidovudine (Retrovir)

Researchers in the United States studied three different combinations of nukes in PHAs who were starting their first regimen of HAART. The purpose of this study was to monitor long-term changes in subcutaneous fat among participants. The study team found that fat loss did not occur with the following combination of nukes:

- abacavir – ABC (Ziagen)
- 3TC – lamivudine (Epivir)

Study details

Researchers enrolled 308 participants with the following average profile at the start of the study:

- 20% female, 80% male
- age – 38 years
- CD4+ count – 208 cells
- HIV viral load – 100,000 copies
- 35% of participants had previously experienced an AIDS-related illness
- 62% were tobacco smokers
- 22% had hepatitis C virus (HCV) infection
- 7% had hepatitis B virus (HBV) infection

An unfortunate aspect of this study is that participants were not given one of the three nuke combinations in a random fashion. Randomization helps to reduce bias when interpreting the results of a study. Participants were divided into three groups based on the combination of nukes that was part of their regimen:

- d4T + 3TC – 63 participants
- AZT + 3TC – 192 participants
- ABC + 3TC – 53 participants

Changes in body fat were assessed by skin-fold measurements in the arms, thighs and abdomen. Although not as precise as the use of low-dose X-ray scans called DEXA, skin-fold measurements have been used for many years to assess body composition and are much cheaper than DEXA scans.

On average, participants remained in the study for between two and three years.

Results

Initially, all participants gained weight, particularly fat in their limbs. However, after about the first year of therapy this changed. Specifically, participants who received regimens containing d4T or AZT experienced a similar degree of subcutaneous fat loss. However, those PHAs taking abacavir and 3TC were likely to gain a small amount of fat in their legs and arms.

Different tissues behave differently
An interesting aspect of this study was the finding that different parts of the body lost fat at different rates. For instance, fat loss in the upper trunk was slower than fat loss in the lower trunk. Why this happened is not yet clear.

The findings from this study confirm those from other studies in which d4T use (and, to a lesser extent, AZT) is associated with the loss of the fatty layer under the skin.

REFERENCE:
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