

The Substance Effect



HIV MEDICATIONS AND SUBSTANCE USE INTERACTIONS

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Statement



- **This is NOT a presentation to forbid**
 - I will not say “Don’t do drugs”
 - You make your own decisions
- **This IS a presentation to inform**
 - Inform what may happen if you choose to use these substances
 - I will say that the use of substances together with HIV medications is not good based on the facts

Objectives



- **Substance use and medication adherence**
- **Substance use and its effect on HIV medications and the medications' effect on substance use**
- **Open communication**

Substance Use



- **Research**
- **Do not always know what you are getting.**
 - Oftentimes substances are “cut” with something else
 - You may not be getting what you thought you were getting
- **Be careful!**

Drug Use and Medication Adherence



- **Medication adherence**
 - Extent to which patients take medications as prescribed by their health care providers
- **Importance in HIV**
- **Drug use was associated with over a fourfold greater risk of adherence failure**
 - “State rather than trait”

The Liver



- **Very important organ**
 - Breaks down and gets rid of waste products from many HIV medications
 - Activates some medications
- **Needs to work**
 - Help it out

Alcohol



- **Can weaken the immune system**
- **Alcohol can also lead to 4 times less likely to achieve a low viral load**
- **Can damage the liver**
 - Liver breaks down substances
 - Hepatitis B and C
- **Videx (didanosine)**
 - Increases the risk of pancreatitis

Alcohol



- **Ziagen (abacavir)**
 - Ziagen is metabolized by alcohol dehydrogenase
 - ✦ This can get overloaded by alcohol
 - ✦ Increase level of Ziagen
 - Nausea, vomiting, fatigue, headache, diarrhea, and loss of appetite

- **Invinase (saquinavir)**
 - Alcohol increase metabolism of Invinase
 - Decrease levels of Invinase → Not work as well

Alcohol



- **Protease Inhibitors and Non-nucleoside Reverse Transcriptase Inhibitors**
 - Alcohol affects differently
 - ✦ Acute- enzyme inhibition
 - ✦ Chronic- enzyme induction (sub-therapeutic levels of drug)

Marijuana



- **Irritates the lungs**
 - Infections possible
- **Damages the liver**
 - Viral hepatitis
- **Increased THC levels with Protease Inhibitors**
 - Smaller doses make more stoned
- **Mood altering drug**
 - Impact on medication schedule

Marijuana



- **Reyataz (atazanivir)**
 - Concentrations of drug decreased

- **Protease Inhibitors and Non-nucleoside Reverse Transcriptase Inhibitors**
 - Viracept (nelfinavir) decreased by 17%
 - Crixivan (indinavir) decreased by 21%

Cocaine



- **Body becomes dehydrated**
 - Increases risk of high blood pressure, dysrhythmias, heart attack, seizures, depression, and anxiety
- **Virus levels**
 - Doubles the speed at which virus reproduces



NOT double the fun

Methamphetamines/ Amphetamines/ Ecstasy



- **Cause heart rate increase, appetite to diminish**
- **Impair immune system**
 - Mouth dryness and tooth loss
 - Weight loss and malnutrition
- **Norvir (ritonavir)**
 - In the same way this “boosts” the effectiveness of HIV medications, this “boosts” amphetamines
- **Makes dose of X 5-10 times stronger**
 - Some advise: If you do take X with a protease inhibitor, wait as long as possible after taking the PI
 - Tell someone what you are doing

Methamphetamines/ Amphetamines/ Ecstasy



- **Decision making**
- **Studies show that stimulant use in particular, rather than drug use in general, was associated with poorer medication adherence.**

LSD (acid)



- **Altered states of perception and feeling**
 - Increased body temperature, increase in heart rate and blood pressure
- **LSD is not thought to affect the immune system and no specific interactions with HIV drugs have been reported**
 - “Tripping” on acid effects adherence
- **Protease Inhibitors and Non-nucleoside Reverse Transcriptase Inhibitors**
 - Can cause build-up of LSD

Heroin



- **Converted to morphine in the body**
- **Small doses**
 - Dreamlike state of warmth and well-being
- **Excessive doses**
 - CNS depression, drowsiness, respiratory depression, constricted pupils, nausea, and vomiting
- **Protease Inhibitors**
 - Possible decrease in heroin levels
- **Norvir (ritonavir)**
 - Reduces heroin by 50%

Prescription Pain Medications



- **Methadone**
 - Can increase infectivity of some HIV strains
- **NNRTIs**
 - **Sustiva (efavirenz)**
 - ✦ Decreases methadone significantly (60%)
 - ✦ Titrate
 - **Viramune**
 - ✦ Decreases methadone significantly (40-50%)
 - ✦ Titrate

Prescription Pain Medications



- **NRTIs**
 - **Ziagen (abacavir)**
 - ✦ Increases methadone clearance (22%)
 - ✦ Patient specific
 - **Videx (didanosine)**
 - ✦ Decreases Videx by 41-60%
 - ✦ Consider dose increase or switch to EC formulation
 - **Zerit (stavudine)**
 - ✦ Decreases Zerit by 23%
 - **Retrovir (zidovudine)**
 - ✦ Increases Retrovir by 40%

Prescription Pain Medications



- **Protease Inhibitors (decrease methadone)**
 - Agenerase (amprenavir)
 - Lexiva (fosamprenavir)
 - Reyataz (atazanivir)
 - Prezista (darunavir)
 - Crixivan (indinavir)
 - Kaletra (lopinavir/ritonavir)
 - Viracept (nelfinavir)
 - Norvir (ritonavir)
 - Fortovase (saquinavir)
 - Aptivus (tipranavir)

Prescription Sedatives



- **Can be deadly if mixed with protease inhibitors (esp. Norvir)**
 - Valium (diazepam)
 - Ambien (zolpidem)
 - Versed (midazolam)
- **Only take if prescribed by a physician**

Erectile Dysfunction Drugs



- **NNRTIs**
 - Potential to significantly increase Viagra, Cialis, and Levitra concentrations → Side effects!!!
 - ✦ Viagra (25 mg every 48 hours)
 - ✦ Cialis (10 mg every 72 hours)
 - ✦ Levitra (2.5 mg every 72 hours)
- **Protease inhibitors**
 - Same as NNRTIs
 - ✦ For example, Norvir (ritonavir) increases the effectiveness of Viagra by 1000%, Cialis by 124%, and Levitra by 49-fold and the half life by 5 to 6 fold

Conclusions



- You should tell your doctor what recreational drugs you are using
 - ASK for help