

Rapid Review Response – HIV Medication and Depression

Question: Is depression a side effect of anti-retroviral medications taken by people living with HIV?

The issue and why it's important

The Ontario HIV and Substance Use Training Program offers workshops across Ontario for counselors working in the field. In the past these workshops have advised counselors to consider that someone with HIV may be experiencing depression as a side effect of their HIV medications, not just the HIV diagnosis. In order to ensure the accuracy of the information provided, the program requested a review of the research literature to determine whether HIV anti-retroviral medications result in depression for people living with HIV or AIDS.

What we found

- Numerous studies have revealed that up to 50% of people living with HIV or AIDS experience depression (1-4).
- The available data suggests that depression leads to worse outcomes in people living with HIV. However, it is unclear whether this difference in outcomes is driven by depression or another factor such as differences in medication adherence or both. More research is needed to help further explain the relationship between depression, HAART and differences in medication adherence (5).
- There are many reasons why some people living with HIV experience depression. Biological and psychological mechanisms can explain this phenomenon (4). For example:
 - Depression may be related to the psychological impact of an HIV positive test report and with the progression of HIV (6).
 - Depression may be caused by HIV penetration of the blood-brain barrier and infection of the central nervous system (sometimes called “organic depression”) (7).
 - Depression may be caused by HIV-related opportunistic illness such as infections or tumors of the brain (also called “organic depression”) (7).
 - Depression and other preexisting psychiatric disorders may be exacerbated by HIV (8;9).
 - Depression or other negative impacts on mental health may be a side effect of certain HIV medications (10).
- Some studies in the post-HAART era suggest that certain HIV medications show side effects related to depression.
- Side effects of HIV medications other than those noted in scientific literature may be noted by patients. No significant research has been carried out on self reported symptoms of HIV versus side effects of medication.

- Some HIV antiretroviral medications specifically note ‘depression’ or ‘strange dreams’ as a side effect. Please note that while some HIV medications note depression, for all medications it is possible for a patient to experience other side effects. In all cases patients should contact their physician if any unusual problems arise while taking this medication.

HIV antiretroviral medications that note depression, strange dreams or night terrors as a possible side effect (11-14):

- Fusion Inhibitor (FI):
 - Enfuvirtide Injection
 - Brand name: Fuzeon[®]
 - Other names: T-20; Pentafuside
- Nucleoside Reverse Transcriptase Inhibitors (NRTIs):
 - Abacavir
 - Brand name: Ziagen[®]
 - Brand names of combination products: Epzicom[®] (as a combination product containing Abacavir and Lamivudine)
 - Trizivir[®] (as a combination product containing Abacavir, Lamivudine, and Zidovudine)
 - Emtricitabine
 - Brand names: Emtriva[®]
 - Brand names of combination products: Atripla[®] (as a combination product containing Efavirenz, Emtricitabine, and Tenofovir); Truvada[®] (as a combination product containing Emtricitabine and Tenofovir Disoproxil Fumarate)
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 - Lamivudine
 - Brand names: Epivir[®], Epivir-HBV[®]
 - Brand names of combination products: Combivir[®] (as a combination product containing Lamivudine and Zidovudine); Epzicom[®] (as a combination product containing Lamivudine and Abacavir Sulfate); Trizivir[®] (as a combination product containing Lamivudine, Abacavir Sulfate, and Zidovudine)
 - Other names: 3TC
- Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs)
 - Efavirenz (side effect: strange dreams) (15)
 - Brand names: Sustiva[®]
 - Brand names of combination products: Atripla[®] (as a combination product containing Efavirenz, Emtricitabine, and Tenofovir)
- Protease Inhibitors (PIs)

- Saquinavir
 - Brand names: Invirase[®], Fortovase[®]
- Atazanavir
 - Brand name: Reyataz[®]
- CCR5 co-receptor antagonists
 - Maraviroc (side effect: “night terrors”)
 - Brand name: Selzentry[®]

Key Take Home Messages

- Depression experienced by people living with HIV or AIDS can be caused by various biological and psychological factors.
- Eight of the HIV antiretrovirals surveyed list depression as a possible side effect.
- Some HIV antiretroviral medications have proven serious or lesser side effects related to depression, including ‘strange dreams’ and ‘night terrors’.

Factors That May Impact Local Applicability

- Covering all mental illnesses is beyond the scope of this rapid review response. Our findings are limited to afflictions and side effects described as ‘depression’, ‘strange dreams’ and ‘night terrors’.
- Very few studies have examined depression as a side effect of HAART.
- Many studies of HIV-related symptoms and treatment side effects do not distinguish individual causal attributions between the two types of problems. The result is a limited ability to differentiate the experience of side effects and disease symptoms on health outcomes such as adherence and quality of life.

What We Did

We located the literature used in this review by searching Medline using the keywords for highly active antiretroviral therapy, depression, mental health and neurological function¹. In addition, we searched PubMed using text search terms related to HIV anti-retroviral therapy, depression and mental health².

¹Medline keywords used: HAART (sub search “adverse effects”) AND depression (2); HAART (sub search “adverse effects”) AND mental health (1); HAART (sub search “adverse effects” AND “Nervous System Physiological Phenomena” (13); HAART NOT “efavirenz” [Substance Name]) AND (“Depression”[Mesh] OR “Depressive Disorder”[Mesh]); “enfuvirtide”[Substance Name] AND “Antiretroviral Therapy, Highly Active/adverse effects”[Mesh]

² PubMed search terms used: nucleoside reverse transcriptase inhibitors AND depression (8); non-nucleoside reverse transcriptase inhibitors AND depression (6); protease inhibitors AND depression (856); HIV AND protease inhibitors AND depression AND adverse effect (10); Fusion Inhibitors AND depression (1);

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