CLINICAL VIGNETTE

Aiming for Prevention: HIV in a Primary Care Setting

Alexander W. Sun, PhD, David B. Gunn, MD and Alina Katsman, MD

Introduction

Recent advances in basic and translational HIV research have significantly improved the treatment of this once-devastating infection, resulting in dramatic advances in HIV disease prognosis and improved prevention.[1] However, there remains significant room for improvement: current clinical and basic science goals regarding HIV includes: developing a vaccine,[2,3] identifying new therapies to treat and even eradicate the virus in infected patients,[4,5] and pioneering public health initiatives to reduce HIV transmission. One of the most exciting advances in public health was the discovery of pre-exposure prophylaxis (PrEP) therapy. PrEP therapy involves treating seronegative individuals with a combination of antiviral drugs such as emtricitabine and tenofovir, effectively reducing transmission of the virus.[6,7] Similarly, seropositive individuals on highly active antiretroviral therapy (HAART) with undetectable viral loads have been shown to be unable to transmit infection.[8] Such discoveries hold tremendous potential to halt the spread of HIV. However, one current challenge is promoting awareness of and adherence to PrEP therapy.[9] Primary care providers are at the forefront of disease prevention and thus play pivotal roles in promoting PrEP adherence for at-risk patients. We report a 24 year-old male who was found to be HIV seropositive on STI screening and highlight how PrEP could have protected this individual from contracting HIV.

Clinical Case

A 24-year-old bisexual Latino male with a history of chlamydia infection in 2017 and unprotected sex with both men and women presented to request STI screening. He reported intermittent condom usage. He had previously visited his primary care physician for STI screening on two earlier occasions. During the most recent visit, the patient noted he had engaged in unprotected penetrative intercourse over the past few years, with his most recent male-to-male encounter occurring 1-2 weeks prior to the clinic visit. He stated that he did not engage in receptive intercourse and denied injection drug use. The patient reported no fever, chills, myalgias, headaches, or recent upper respiratory infection symptoms. Physical examination revealed an afebrile male in no acute distress. Cardiovascular, lung, and skin exams were normal. The exam was pertinent only for a palpable right occipital lymph node. An STI panel to include Chlamydia, Gonorrhea, Hepatitis B and C, Syphilis, and HIV was ordered. The patient was counseled on safe sex practices, though he reiterated a preference to avoid condom usage. Unfortunately, the patient tested positive for HIV-1. He was contacted over telephone to come in to the clinic for the news, which was delivered in person. Initially devastated by the diagnosis, the patient voiced concerns regarding the cost of treatment, and was hesitant to disclose the news to family, including his parents. We reassured the patient that his illness is treatable, and offered him mental health counseling resources. After three weeks, the patient followed up with an infectious disease specialist to discuss treatment options and to obtain HIV genotype testing. Additional lab results included a viral load of 76,677 copies/mL, CD4 count of 379, and CD4/CD8 ratio of 0.30. Unfortunately, the patient confirmed he was not covered by insurance, and could not afford additional testing including virus genotyping. The patient was urgently referred to organizations that provide assistance to HIV-infected individuals, including the LGBT Center of Los Angeles and APLA Health.

Discussion

Originally FDA-approved in 2012, PrEP therapy generally utilizes a combination of two anti-HIV drugs; the nucleotide analog reverse-transcriptase inhibitor (NtRTI) tenofovir, and the nucleoside reverse-transcriptase inhibitor (NRTI) emtricitabine.[10] Other anti-HIV drugs are currently being tested as PrEP therapies.[11] One example is the HPTN-083 trial, investigating the use of a single dose of long-acting injectable integrase inhibitor cabotegravir, which has a half-life of 21-50 days. Though cabotegravir is still investigational, such a PrEP regimen may be particularly beneficial in patients with poor adherence to daily pills.[11]

As of 2017, over 70,000 unique individuals filled prescriptions for emtricitabine/tenofovir for PrEP. This corresponds to a prevalence of 25.8/100,000 new HIV cases.[12] Other estimate 492,000 gay/bisexual men are at high risk for HIV acquisition, validating the underutilization of PrEP in this population.[13] Among those age 24 or younger, the group at highest risk for HIV acquisition, PrEP usage is estimated at only 15/100,000 new HIV cases.[12] This highlights the need to promote increased utilization of PrEP in this at-risk population.

Typically dosed once daily, PrEP with emtricitabine/tenofovir has been shown to be an effective method of preventing HIV infection in seronegative people at high risk of infection. Individuals who maintain strict medication adherence with

detectable blood levels of emtricitabine/tenofovir had 99% reduction in HIV acquisition risk.[7] PrEP is indicated for individuals at increased risk for HIV infection due to behavioral factors such as risky sexual practices and injection drug use. Prior to initiating therapy, the patient should be verified to be HIV-seronegative, as inadvertently using PrEP in seropositive individuals can produce drug resistance.[14] The most common side effects associated with emtricitabine/tenofovir include headache, abdominal pain, and weight loss. In addition, tenofovir has been associated with nephrotoxicity. Patients should avoid concurrent NSAID usage, and have adequate renal function defined as estimated creatinine clearance (CrCl) rate ≥60 mL/min.[15] Should CrCl drop below 60 mL/min, emtricitabine/tenofovir is recommended to be discontinued. Other issues to be aware of include decreases in bone mineral density, lactic acidosis, and hepatomegaly.[16] Bone density monitoring is appropriate for those with a history of pathological fractures or risk factors for bone loss and emtricitabine/tenofovir should be discontinued if laboratory or clinical findings indicate metabolic acidosis or hepatotoxicity. Finally, the patient should be counseled to regularly follow up for HIV screening and renal function testing every 3 months, as no refills are to be given until documented negative HIV test.

Because our patient fell into a high-risk category due to his practice of male-to-male and unprotected sex, PrEP would likely have provided significant benefit for him. Thus, primary care providers who encounter individuals with the following risk factors should consider recommending PrEP: injection drug users, male-to-male sex or unprotected sex with multiple partners, recent STI, or a partner with HIV or who is at risk for HIV exposure. Additional minor teaching points include: importance of continued emphasis of safe sex practices such as condom usage. Difficult news such as an HIV diagnosis should always be delivered in a compassionate manner along with addressing health, social, and psychological concerns. Our patient was devastated by the news, and needed “space” to process the news. Social and psychological concerns should be addressed, including notifying sexual partners, providing resources for mental health support and addressing questions such as stigma. Our patient was uninsured and concerned about the cost of HIV medication and was referred to organizations that provide assistance.

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