Engagement in Human Immunodeficiency Virus Care

Linkage, Retention, and Antiretroviral Therapy Adherence

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KEYWORDS

• Human immunodeficiency virus retention • Linkage to care • Adherence monitoring

KEY POINTS

- Early entry into and subsequent retention in care improves human immunodeficiency virus outcomes.
- Early initiation of and adherence to antiretroviral therapy (ART) improves outcomes.
- Monitoring and measuring care engagement and ART adherence are foundational.
- Monitoring missed visits and ART adherence self-report is readily achievable in clinical settings.
- A range of evidence-based interventions are available that can optimize adherence to care and ART and be implemented in clinical settings.

INTRODUCTION

Successful diagnosis, treatment, and retention in care for patients infected with the human immunodeficiency virus (HIV) have been shown to correlate with clinical outcomes and reduction in HIV transmission. In the modern antiretroviral therapy (ART)

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era, HIV has become a chronic illness that can be managed successfully with medication adherence and close monitoring. Patients infected with HIV develop significant morbidity and mortality despite pharmacologic advancements if they fall out of care or fail to take their ART regimen consistently. The finding that more than half of persons diagnosed with HIV infection in the United States are not engaged in regular medical care highlights the significance of retention in care in contemporary HIV management. In this article, best practices for HIV retention, including adherence and retention monitoring, treatment, and tools for optimizing care, are summarized.

IMPROVED HIV OUTCOMES WITH COMBINATION ART

Improved survival with ART has been appreciated since the late 1980s, when zidovudine monotherapy was used in patients with advanced HIV and AIDS. In the early 1990s, newer antiretrovirals such as zalcitabine and didanosine, and later, stavudine and lamivudine, began to show promise. These drugs were successfully used in combination regimens, and clinical trials confirmed the benefits of combination therapy over monotherapy. Clinical trials evaluating combinations of protease inhibitors and nonnucleoside reverse transcriptase inhibitors had more favorable results, ushering in the era of modern combination ART.[1] There are now multiple options for ART in newly diagnosed and treatment-experienced patients infected with HIV, which contributes to reduced morbidity and mortality. Survival continues to increase for those diagnosed with HIV and AIDS.[2] Despite excellent therapeutic options, some patients infected with HIV never achieve virologic suppression, because they cannot or do not remain linked to an HIV treatment program and adherent to ART. One of the greatest challenges in the fight against HIV remains patient retention, with implications for individual and population health outcomes.

Linkage and Retention in Care

Early entry into care

Timely diagnosis, linkage and retention in care, and early treatment of HIV have been shown to reduce complications and HIV transmissions. A South Carolina study[3] evaluated retention in care by studying clinic visit attendance over the first 2 years after HIV diagnosis. Those who attended 4 clinic visits (at least 1 per 6-month interval) over the first 24 months of care had a greater reduction in viral load, whereas those who attended sporadically or dropped out of care had higher mortality. Furthermore, early initiation of ART benefits patients, their partners, and their community's health. In a large study of 9 countries,[4] serodiscordant couples were assigned to early or later initiation of ART. The early ART group received therapy when CD4 counts were between 350 and 550, whereas the delayed group did not receive therapy until CD4 counts were less than 250, in accordance with local treatment recommendations at that time in participating countries. There was a 96% relative reduction in linked HIV-1 transmission events with early initiation of ART. In addition, early initiation of ART led to a 41% reduction in HIV-related clinical events compared with delayed therapy. Although many guidelines recommend earlier initiation of ART, the real world challenge of late diagnosis persists. Most newly diagnosed persons have initial CD4 counts lower than levels at which ART is recommended in all guidelines. Moreover, over the past 2 decades, there has been a modest increase in CD4 counts at diagnosis and care entry (1.6 cells/μL per year), highlighting the need for innovative testing strategies to facilitate more timely diagnosis and ART initiation.[5]

The HIV treatment cascade (**Fig. 1**A) shows an approximately 50% drop-off in patients between diagnoses with HIV to consistent engagement in care, with large,