BOSTON HEALTHCARE

The Value of Innovation in HIV/AIDS Therapy

Executive Summary | September 2014

In the last two decades, we have seen remarkable advancements in the fight against HIV/AIDS (human immunodeficiency virus/acquired immunodeficiency syndrome), transforming the disease from an acute, fatal illness to a chronic condition.

This incredible progress has been realized through a complex process of cumulative gains in clinical knowledge and research that expands the evidence base, driving remarkable changes in HIV treatment and prevention over time. Our understanding of how certain novel therapies may be optimally incorporated into patient care has evolved as they have been introduced and evaluated in real-world clinical practice. Therefore, the optimal role and full value of a therapy typically cannot be known at the time of Food and Drug Administration (FDA) approval or at the time of U.S. market launch. FDA approval often marks the "starting point" for a number of additional evaluations of a novel therapy.

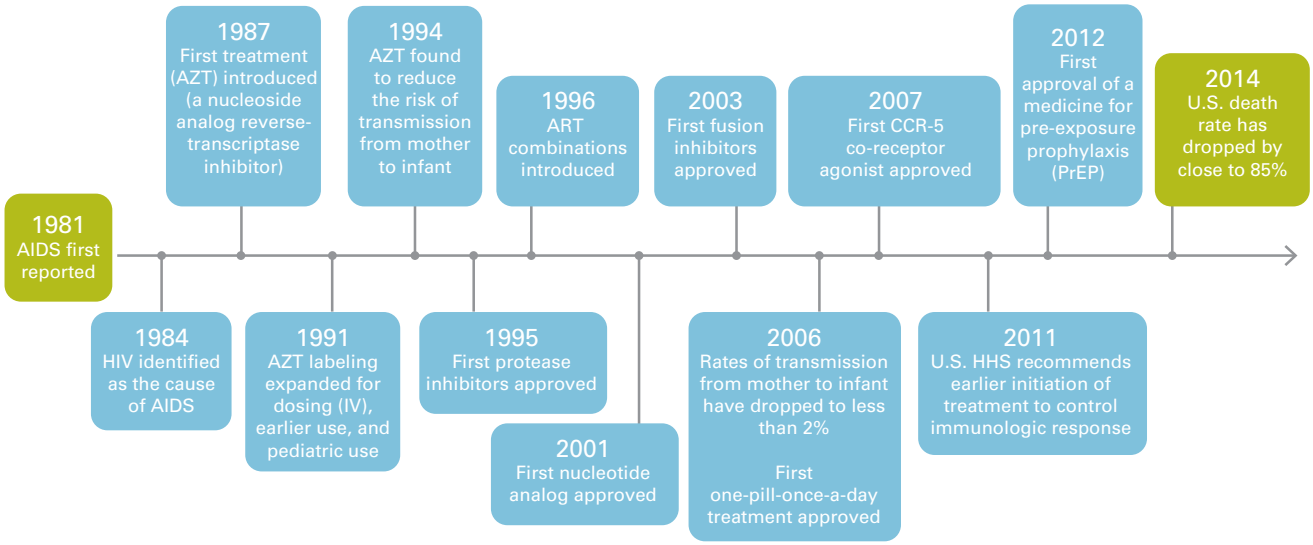
This accumulated knowledge reveals new approaches to treatment, enabling Americans to live longer and healthier lives than ever before. Additional clinical value of HIV/AIDS therapies is realized over time through many different pathways, including use in combination with other agents, use earlier in disease state, and use in different disease indications.*

USE IN COMBINATION WITH OTHER AGENTS

Combination therapy, particularly highly active antiretroviral therapy (ART), has dramatically changed the HIV/AIDS treatment paradigm as it has been shown to provide the best opportunity for clinical response and disease remission in HIV/AIDS patients, even beyond initial expectations for individual treatments.

The understanding of these combination therapies has grown significantly over time as new medicines have been discovered and approved, with more than 40 drugs now available. In the early years of HIV/AIDS treatment, combination regimens were not available and viral resistance quickly became a challenge.[1] Since the introduction of ART combinations in the mid-1990s, death rates have fallen by close to 85 percent.[2,3]

FIGURE 1. HIV/AIDS: Treatment Advances: 1980s to Present



Sources:
PhRMA Chart Pack: Biopharmaceuticals in Perspective, Spring 2014; U.S. Food and Drug Administration Press Release, "FDA approves first drug for reducing the risk of sexually acquired HIV infection," July 16, 2012 (http://www.fda.gov/newsevents/newsroom/pressannouncements/ucm312210.htm); Fact Sheet: The HIV/AIDS Epidemic in the United States, April 2014, Kaiser Family Foundation (http://kaiserfamilyfoundation.files.wordpress.com/2014/04/3029-15-the-hivaids-epidemic-in-the-united-states1.pdf), accessed September 3, 2014)

*This may include both new indications approved by the FDA and off-label uses supported by research and deemed clinically appropriate by physicians. The evidence in this paper focuses on new FDA-approved indications.

USE EARLIER IN DISEASE STATE

In addition to an increased use of combination therapy, the treatment paradigm for HIV/AIDS has evolved to reflect the benefits of initiating therapy earlier to better control disease progression. Real-world clinical practice and other data support the notion that earlier initiation of treatment in the disease cycle leads to improved long-term outcomes and immunologic response.

The most recent U.S. Department of Health and Human Services guidelines for treatment of HIV infection affirm that there is evidence to support the benefits of viral suppression and immunologic response in earlier-phase disease.[4] This recommendation came about following results from several key studies, including a trial that observed that the risk of death was 94 percent higher in patients who deferred treatment compared with patients who initiated treatment very early in the disease, thereby delaying disease progression.[5]

USE IN DIFFERENT DISEASE INDICATIONS AND POPULATIONS

With a better understanding of disease pathology, how the disease evolves and progresses, and how resistance develops, therapies for HIV/AIDS have become more targeted and have proven to be beneficial not only for the treatment of the disease, but also for the prevention of transmission, leading to new uses and indications for many treatment regimens.

While antiretrovirals were first approved for patients with primary HIV infection, several have been found to provide additional benefit to infected pregnant women and their unborn children, helping to drive down the rate of maternal-fetal HIV transmission. For example, the expanded use of zidovudine as a subsequent indication has contributed dramatically to driving maternal-fetal HIV transmission rates down from 30 percent to less than 2 percent.[6]

Building on these findings, researchers have established the use of antiretrovirals to help prevent HIV infection in high-risk populations. In 2014, the World Health Organization released guidelines recommending that men who have sex with men consider pre-exposure prophylaxis (PrEP) as a part of a comprehensive HIV prevention package.[7] This is the first recommendation of its kind, signifying increasing support for PrEP in populations that are disproportionally affected by HIV.

"Antiretroviral therapy for the treatment of HIV infection has improved steadily since the advent of potent combination therapy in 1996. New drugs have been approved that offer new mechanisms of action, improvements in potency and activity even against multidrug-resistant viruses, dosing convenience, and tolerability."[3]

— U.S. Department of Health and Human Services (HHS), Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents, March 2012

CONCLUSION

Over the past two decades, cumulative advances in the treatment of HIV/AIDS have led to substantial gains for patients, shifting what was once considered to be a lethal disease to one that is chronic and manageable for patients who have access to medicines.

While the introduction of new medicines is critically important, the continuing evolution of our understanding of the value of these medicines over time is equally important. Many of the broader benefits of HIV/AIDS treatments, such as use in combination, use earlier in the disease state, or use in different disease indications and populations, were not known or anticipated at the time of initial FDA approval of these medicines. The value of these advances has been recognized through real-world practical experience and accumulating a growing body of clinical data and research. Continued innovation with both existing and as-yet undiscovered therapies provides hope for future clinical advances that will benefit individual patients and society as a whole.

1 U.S. FDA, "Antiretroviral Drugs Used in the Treatment of HIV Infection," http://www.fda.gov/forconsumers/byaudience/forpatientadvocates/hivandaidsactivities/ucm118915.htm (2014).

2 National Center for Health Statistics. Health, United States, 2013: With Special Feature on Prescription Drugs. Hyattsville, MD. 2014. http://www.cdc.gov/nchs/data/hus/hus13.pdf (2014).

3 Henry J. Kaiser Family Foundation, "Fact Sheet: The HIV/AIDS Epidemic in the United States," http://kaiserfamilyfoundation.files.wordpress.com/2014/04/3029-15-thehivaids-epidemic-in-the-united-states1.pdf, (2014).

4 U.S. HHS, "Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents," http://aidsinfo.nih.gov/contentfiles/lvguidelines/AdultandAdolescentGL.pdf (2014).

5 U.S. HHS, CDC, Mortality and Morbidity Weekly Report, "HIV Surveillance – United States, 1981-2008," 60(21); 689-693, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6021a2.htm, (2011).

6 U.S. HHS, CDC, Mortality and Morbidity Weekly Report, "Achievements in Public Health: Reduction in Perinatal Transmission of HIV Infection - United States, 1985—2005," http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5521a3.htm, (2006); also, U.S. FDA, Retrovir® (zidovudine) full prescribing information, http://www.accessdata.fda.gov/drugsatfda_docs/label/2008/019910s033lbl.pdf, (2008).

7 WHO "Policy Brief: HIV Prevention, Diagnosis, Treatment and Care for Key Populations," http://apps.who.int/iris/bitstream/10665/128049/1/WHO_HIV_2014.8_eng.pdf?ua=1, (2014).