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Editorial

HIV/AIDS in 2014 - Where Are We Now?

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In 1981, reports started surfacing of individuals presenting with previously rare opportunistic infections [I]. In short order the Human Immunodeficiency Virus was identified [2,3] and determined to be the cause of AIDS. No disease in the last half century has been so feared, stigmatizing and polarizing as this one. In the decades since the discovery of HIV, there have been outstanding successes and disheartening failures as we battle to prevent, treat and cure this disease.

In the early years of the epidemic, great strides were made in the identification, treatment and prevention of the opportunistic complications of HIV. Pneumocystis pneumonia, which had previously been a rare curiosity, became a major cause of morbidity and mortality. But effective treatments, and ultimately prevention, became possible. Similarly, treatments and preventative measures were developed for a host of other heretofore rare pathogens. Kaposi's sarcoma, which was once a rare malignancy, became a common presenting sign of HIV infection. Once efforts were directed to understanding the sudden explosion of this neoplasm, researchers identified a novel new herpes virus, HHV8 [4] associated with this malignancy. To be sure, we are far from eliminating these complications. Too many individuals present late in the course of their disease, or are unable to benefit from the therapies that are available. Some complications, such as Progressive Multifocal Leukoencephalopathy remain treatable only by restoring the immune system. However, if individuals are identified early, many of these opportunistic diseases can be avoided.

Not all aspects of HIV infection have been proven to be amenable to rapid solutions. Perhaps our greatest failure has been the inability to completely prevent new infections, despite the knowledge of how the disease is spread, and the measures that can be taken to prevent this. In the US. it is estimated that there are 50,000 new infections annually [5]. With the identification of the virus and the introduction of effective blood screening, the number of infections transmitted by infected blood and organ transplantation in the developed world is vanishingly small. Newer fourth generation assays to detect antibodies to HIV and p24 Ag enable us to identify individuals infected in less than three weeks of acquisition. Newer designs in needles which are used in blood drawing and intravenous line insertions have made these procedures much safer when guidelines are followed. The introduction of occupational post exposure prophylaxis has further increased our ability to limit accidental infections in the healthcare setting. These successes have been dramatic and have saved untold numbers of lives.

On other fronts our successes have been much more modest. Consistent and appropriate use of condoms and clean needles theoretically should dramatically reduce infections, but this requires changes in human behavior that are much more difficult to achieve. Despite our efforts to educate individuals at risk, many remain uniformed, unwilling or unable to take adequate preventative steps.

Similarly, Pre-exposure prophylaxis (Prep) has been a mixed bag as well. Multiple trials have shown that protection is possible, but is not universally effective [6-8]. Once again, this requires an individual to consistently take therapies that may not be appropriate or acceptable for all, may have side effects, and are not universally available. Studies on microbicides, to this point, have shown no benefit and in some cases have enhanced HIV infectivity. Other measures, such as circumcision, can reduce transmission of both HIV and other sexually transmitted infections, but remain voluntary and underutilized.

Perhaps our greatest challenge has been in developing a safe and effective vaccine. Identifying correlates of immunity, and developing an effective vaccine has had limited success [9-11]. No trial has shown enough clinical protection to warrant its implementation. Even if a safe and affordable cure were to be introduced now, it might not prevent reinfection. Therefore a vaccine, if effective, is of paramount importance.

However, all is not so bleak. With the introduction of antiretroviral therapy and the understanding of the mechanisms for viral replication we now have effective therapies which can halt disease progression and often restore protective levels of immune function. In many parts of the world, HIV has been turned into a manageable chronic disease that can allow individuals to lead long, healthy and productive lives. Furthermore, successfully treating an HIV infected individual has the added benefit of reducing the likelihood of that individual spreading the infection to others. Perhaps one of the greatest successes we have achieved in limiting HIV spread has been the introduction of universal maternal screening and treatment to prevent maternal-fetal transmission in developed countries. Transmission rates of 15% to 45% can be reduced to less than 2% in women receiving antiretroviral therapy during pregnancy,

labor and breastfeeding [12]. Unfortunately, while this is the case in most of the developed world, it remains problematic to get life-saving therapies to many of the afflicted in impoverished nations. Each day, more HIV infected children are born, only to succumb to their illness.

Even in the US, the gap between those infected and those receiving adequate care remains substantial. While there were an estimated 1.1 million people infected at the end of 2009, it was estimated that 20% were unaware of their diagnosis, less than 50% were in regular care, and less than 20% until recently maintained an undectable viral load [13]. In an era where sustaining an undectable viral load should be achievable for the majority of infected persons, these figures are clearly unsatisfactory.

Until recently, a cure was thought by many to be unattainable. This changed with the initial report [14] of a man apparently cured after receiving a bone marrow transplant from a donor lacking the chemokine receptor for CCR5. Unfortunately, bone marrow transplants come with their own morbidities. But with one report comes the hope of better and more acceptable remedies. Thankfully, laboratories and providers around the world continue to explore new treatment options. Into this environment we usher in a new journal aimed at providing clinicians and researcher's access to peer reviewed clinically relevant research in HIV/AIDS.

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