

HIV patients 'aging before their time'

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While combination antiretroviral therapy has meant that people with HIV can live longer lives, research shows that the virus makes fundamental changes to the immune system by increasing the risk of developing age-related conditions.

"What we are now realising is that HIV as a disease is really a disease of inflammation. We are able to control the virus, but what remains are the [immune dysfunction](#) and dysregulation in patients that are leading to the diseases of ageing such as cardiovascular diseases, bone disease, cancer and diabetes," Alan Landay, chair of the immunology and microbiology department at Rush University Medical Center of Chicago, in the United States, tells *SciDev.Net*.

Landay, who has been speaking at various sessions of the 16th International Congress of Immunology in Melbourne, calls this new concept "inflammaging", referring to the "accelerated immune senescence or the cells are getting old before their time" which they are seeing in HIV patients.

Globally, 36.7 million people are living with HIV/AIDS and 1.1 million people died of AIDS-related illnesses in 2015. As many as 129 low- and [middle income countries](#) reported a total of 150 million people tested with the disease in 2014. About 17 million people worldwide are on anti-retroviral drugs.

Researchers are finding that in communities where non-communicable diseases are occurring, there is also a high prevalence of HIV.

To manage HIV healthcare in developing countries, Landay urges simple, easy approaches to treatment such as blocking systematic inflammation by aspirin. They are also trialling statins in HIV patients to see whether it reduces inflammation and the co-morbidities.

"But statins have side effects so we are also looking at simple things like nutrition," adds Landay. "The high fat, burger-fries kind of Western diets are very much moving into the developing countries. We are looking at what we can recommend in diet as it has a great effect on the microbiome and immune system."

"We are looking at simple interventions to affect the immune system so probiotics or prebiotics would be the way of modulating the gut microbiome, the inflammation and then see the ageing effects or the non-communicable diseases being reduced," he says.

Additionally, Landay recommends the use of other technologies such as the flow cytometer and other assays. "What we are now developing are biomarkers so we can start to screen patients all over the world. We have been moving the technologies into Africa, India, China, South America which earlier couldn't afford them. The machines are already there to follow up on our HIV patients, but now we repurpose them to look at the other marker for [non-communicable diseases](#) as well."

While a cure for HIV is still a long way, in the last five years a lot of work has been done in tracking down the area where the virus is hiding and clinical trials have shown that the virus can be pulled out of hiding.

"Treatment controls the virus to very, very low levels, but as soon as you stop the treatment, the virus bounces back. We are trying to find ways that someone could safely stop their [anti-retroviral drugs](#) and their virus stays at low or undetectable levels. So the goal of our research is to make the virus visible from its hiding place and to also increase the [immune](#)

[response](#) to HIV once it becomes visible," explains Sharon Lewin, the inaugural director of the Peter Doherty Institute for Infection and Immunity in Melbourne.

"It is work that is really relevant to low-income countries. Only about 40 per cent of people who need treatment are on treatment. Also, you need to be in life-long healthcare for HIV," stresses Lewin.

Lewin's other area of research covers strategies to cure children with HIV. While the number of children being born with HIV has decreased dramatically by treating the infected mother, there are still 200,000 children born with HIV each year.

"If you treat the infected child very early, you may have the opportunity to reduce the amount of [virus](#) going into hiding. We are working with researchers in Thailand on the effects of early treatment," Lewin tells SciDev.Net.

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