**HIV Treatments Update**

Each year Body Positive hosts a one day seminar updating the community on advances and progress on HIV medicine, treatments and issues surrounding living with HIV. The latest event took place at the Pullman Hotel in Auckland on 26th August. Speakers came from a wide range of fields including medical and legal, and attending were academics, police, support workers and health professionals, as well as people living with HIV.

Professor Simon Mallal is the executive director of the Western Australian Centre for Clinical Immunology and Biomedical Statistics. He is an HIV physician and clinical immunologist based at the Royal Perth Hospital. His team in partnership with Murdoch University has been credited with several key advances in HIV medicine.

The focus of his presentation was centred around when is the best time to start treatment based on CD4 counts. In New Zealand at present, treatment is not usually offered to those with a CD4 count above 350 per ml of blood. Overseas, especially in the United States, there is a shift towards commencing treatment when a patient’s CD4 levels drop to 500. However, the long term benefit of such an approach is not yet clear.

A case is made that those starting treatments earlier have their viral loads reduced to an undetectable level and are therefore far less likely to pass on HIV to new partners. This has become known as “Treatment as Prevention”. However, questions have been raised about the long term effects of the toxicity of the treatments versus the effects of the toxicity of the treatments versus the treatment guidelines. He did however, reiterate that in his opinion, Australia and New Zealand have performed well in comparison to other countries in handling the HIV/AIDS issue since 1980 due to their political bipartisan approach, a politically active patient group and broad community support for the measures to be taken.

The next speaker was associate professor Mark Thomas. He is an infectious disease physician at Auckland Hospital specialising in adult patients with HIV and AIDS. His presentation on HIV in New Zealand concentrated on the next 20 years and on HIV treatments looking up to 10 years hence. He predicted that New Zealand is at serious risk of experiencing an exploding rate of new HIV transmissions if the focus is lost on encouraging condom use and needle exchange programmes. Despite the best efforts of the New Zealand AIDS Foundation (NZAF) to curtail transmission he foresees significant increases in infection amongst men who have sex with men (MSM).

Carissa Sutherland is a masters student in Health Psychology at Auckland University. She has worked under the supervision of Professor Keith Petrie and Dr. Mark Thomas. Her research has looked at the effect of internet and social media on interactions between people with HIV infections and Auckland Hospital’s Infectious Disease Service.

Her research has thrown up interesting data on how few patients use the internet to access information on HIV treatments and how few challenge their physician or pose questions regarding their treatment. New Zealanders appear tame compared with their American and Australian counterparts who participate far more in the decision making regarding their treatment.

Associate professor Nigel Dickson is Director of the AIDS Epidemiology Group in the department of preventative and social medicine at the University of Otago. He has researched sexual behaviour and reproductive health since 1990 and is the co-director of the New Zealand pediatric surveillance unit at the department of women’s and children’s health since 1997.

Tony Hughes is the director of the NZAF research unit. His presentation highlighted the need to maintain condom use as the best method to prevent HIV transmission. He argued that using a "treatment as prevention" approach was counter-productive as people perceived those with undetectable viral loads as virtually non-infectious. He used Australian models to demonstrate that the most consistent method of prevention is sustained condom use.

Tony’s presentation showed that receptive anal sex is 18-20 times more risky than vaginal sex. He was concerned that arguments in favour of treatment as prevention sends the wrong message to the MSM community who should be encouraged to maintain or improve condom usage.

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Professor Simon Mallal and professor Elizabeth Phillips visit New Zealand

Professor Simon Mallal visited New Zealand from Perth where he is the clinical director of the Western Australian Centre for Immunology and biomedical statistics. He is also an HIV physician and has an international reputation.

Body Positive invited him to attend and speak at the recent annual HIV Treatments Update seminar at the Pullman Hotel (refer to our previous story for coverage of this). After the conference he met New Zealand HIV physicians over dinner at Auckland’s Northern Club where he made a presentation about Lipodystrophy.

“Lipodystrophy: forgotten but never forgiving” was the topic of his presentation. HIV medication is very toxic and the earlier medications were even more so and some have been attributed to causing a side effect called lipodystrophy which is a redistribution of the fat on the body. It can cause the limbs and buttocks to loose weight significantly out of proportion to the rest of the body. Whist we can cover up this concern by clothing it is more difficult to conceal when the face is affected and suddenly becomes very gaunt looking. This has over time been referred to as the “AIDS look”. Fortunately today there are treatments that can restore volume to the face by injecting product in. (In New Zealand, Body Positive provides this clinical service to those in need.)

Worse for some is the redistribution of fat in the body to accumulate at the back of the neck creating what is referred to as “buffalo’s hump”. Not only disfiguring but also extremely expensive to correct, usually by surgical procedure. All of this is created by the impact of what these HIV antiretroviral medications has caused. There is no doubt that the current generation of those living with HIV are the “guinea pigs” for future generations of people living with HIV. If these external concerns create significant physiological issues for those impacted then the physical impact can be immense. Professor Mallal described the external effects as only the “tip of the iceberg”.

His work in this field is world leading. His research focus has been opportunistic infections in people living with HIV with immunodeficiency and the immune systems response. Professor Mallal has defined the prospective genetic testing that now routine pharmacogenetic testing around the world.

Professor Elizabeth Phillips presented her paper on “Non-AIDS co-morbidities / pharmacogenetics and select drug toxicities”. Elizabeth is a Canadian trained internal medicine specialist with subspecialty qualifications in infectious diseases. Married to Simon Mallal and travelling together to New Zealand for the first time together both these eminent professors challenged our New Zealand physicians to think of more than universal recommendation of treatment and to think more of individualised treatment for patients. Both professors made some interesting forecasts for the future of HIV treatment and research and we all wait the outcome of this research and journey that is the lives of those living with HIV.
How infectious are HIV+ gay men?

Most HIV positive people share a common fear. Namely, that we don’t want to transmit this virus on to anyone else. The fear is probably most intense for people in a serodiscordant relationship, but it remains a real concern for all of us.

It’s not surprising that the recent news about the reduced infectiousness of people with HIV on effective treatment has raised a lot of interest.

Andrew Grulich from the Kirby Institute in Sydney believes that it’s all starting to look very much like another 1996 moment.

“What we saw in 1996 was a revolution in the treatment of HIV through the introduction of highly active antiretroviral therapy (HAART)”, he said.

“Now with the results of several recent studies, there is hope that we can go one step further and that treatment to prevent HIV may become a reality”.

Professor Grulich is referring to HPTN 052, a study that was investigating whether the positive partners in serodiscordant couples could still transmit HIV on HAART. The trial was discontinued recently after they found that there was a 96% reduction in HIV transmission within the group who had commenced treatment versus those who hadn’t.

He is also referring to the moderate effectiveness of the pre-exposure prophylaxis study, IPREX. When results came in last year, they showed that the group who took tenofovir as a prophylaxis against HIV experienced 42% fewer infections than those in the non-treatment arm. What’s more, this reduction rose to more than 72% for those who took treatments on 90% or more of the days required.

A GAME CHANGER FOR HIV PREVENTION?

HPTN 052 was run by the National Institute of Allergy and Infectious Diseases (NIAID) in the United States. It recruited 1763 serodiscordant couples from nine countries, 97% of whom were heterosexual.

Approximately half the couples were on HAART immediately and the other half were counselled on safe sex, provided with free condoms and treated for sexually transmitted infections (STIs).

The trial started in 2005 and was due to run until 2015, but was halted by the data and safety monitoring board when it discovered that out of 28 new infections that had occurred, 27 were in the delayed treatment arm. Clearly, this group had higher rates and so was put on ART immediately.

This news comes after the Swiss Statement concluded in 2005 that the risk of transmitting HIV was greatly reduced if people were on effective antiretrovirals with an undetectable viral load.

Fairley believes this is an argument for getting people tested as early and frequently as possible to try to limit potential new transmissions.

The results of the study and other studies in gay men around the world will be very important. There are unanswered questions about HIV transmission between gay men. We have not seen a sustained decrease in the level of HIV infections amongst gay men since the nineties, even though we have had relatively effective treatments since then.

Grulich wants to know the reason for this.

“Certainly the increases in sexually transmitted infections (STIs) in gay men have played a role as we know that people’s viral load and infectiousness also increases in the presence of an STI”.

LOWER RATE OF INFECTIONS?

Professor Kit Fairley, director of the Melbourne Sexual Health Centre, thinks there is evidence of a decrease in the infectiousness of HIV positive people. He says there has been a decline in the numbers of HIV notifications for every 100 people living with HIV infection.

In other words: as the numbers of positive people are increasing, the numbers of new diagnoses has not gone up proportionately. This, he believes, is probably due to HIV positive people being less infectious.

An alternative explanation may be that as many HIV positive people enter their 50s and 60s, they may be having less at-risk sex than previously.

“The critical time for HIV infection is when it’s in the early stages in someone’s body”, says Fairley.

He explained how science has shown that, out of the hundreds of thousands of virions present in a positive person’s body, usually only one gets through to make the infection happen. The virus is naturally more infectious than the others and so when it multiplies rapidly during early infection, all the viruses present are naturally more infectious. Five years down the track, the viruses have changed so most are less infectious than these early ones. Therefore people with early HIV infection are more infectious than those with established HIV infection even if their viral load is exactly the same.

Fairley believes this is an argument for getting people tested as early and frequently as possible to try to limit potential new infections. Dr Tim Read, also from the centre, is running a trial on rapid testing in men who have sex with men (MSM) to see if this increases their frequency of testing. Rapid testing provides support to people to change their risk-taking behaviors.

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Vaccine could make HIV a chronic minor infection

A vaccine tested in a clinical trial has the potential to turn HIV into a "minor chronic infection", similar to herpes, scientists claim.

Ninety per cent of healthy volunteers given the MVA-B vaccine developed an immune response to HIV in phase I clinical trials. "MVA-B vaccine has proven to be as powerful as any other vaccine currently being studied, or even more", said professor Mariano Esteban, at the National Biotech Centre in Madrid, where the vaccine was developed.

The vaccine consists of a harmless virus - vaccinia - which has been genetically altered to carry four HIV genes, to try to stimulate a specific immune response against HIV.

Some 30 healthy volunteers took part in the trial, 24 of whom received the MVA-B vaccine, while six were given a placebo. All study participants were given the vaccine at the beginning of the trial and after four and 16 weeks.

After 48 weeks, immunological tests on the volunteers' blood showed that around ninety per cent of the volunteers given the vaccine developed some type of immune response. The vaccine stimulated both T and B cells.

Both T and B cells are types of white blood cells; T cells seek and help organise the immune response against invaders. Other T cells are long-lived and form an immunological "memory", so the immune response can rapidly respond to re-infection.

Nearly three-quarters of the volunteers developed HIV specific antibodies after 48 weeks. The vaccine also triggered up to 15 different types of T cells, including memory T cells, according to the research team.

The success of the vaccine at triggering the immune response led the researchers to suggest that the MVA-B could be used as a therapeutic vaccine.

Normally vaccines are designed to prevent someone from being infected with a disease. Therapeutic vaccines are used to treat people with the disease by boosting the immune response, controlling the infection rather than eradicating it.

The next step would be to test the vaccine on people already infected with the virus, the researchers said.

Professor Esteban said, "MVA-B is not capable of removing the virus from the body as once a cell is infected, virus' genetic data is integrated and replicated with the cell".

But in a vaccinated person - "If the virus enters the body and tries to develop in a cell, the immune system is ready to inactivate the virus and destroy the infected cell".

"If this genetic cocktail passes Phase II and Phase III future clinic trials, and makes it into production, in the future HIV could be compared to herpes virus nowadays".

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