Common treatments for children with HIV equally effective, study shows

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(PhysOrg.com) -- A major trial comparing the effectiveness of two classes of drugs commonly used to treat HIV in children has found that both are equally effective as an initial treatment. The study, published online today in *The Lancet Infectious Diseases*, also found that when the level of virus in the blood starts to increase, delaying the switch to a second treatment does not affect the long-term outcome.

The PENPACT-1 study was set up to address two questions about the best practice for treating HIV in children. In the early 2000s, paediatricians were divided in opinion over what combination of antiretroviral drugs should be given as an initial "first line" treatment to children with HIV. Clinicians in the US favoured combinations containing protease inhibitors (PI), while those in Europe favoured combinations containing non-nucleoside reverse transcriptase inhibitors (NNRTI).

After a certain period on antiretroviral therapy, the levels of virus in some patients' blood begin to rise and HIV strains resistant to the drugs may emerge. At this stage, doctors consider switching the patient onto a different combination of drugs ("second line" therapy) to increase the chances of successful treatment. However, the vast majority of children with HIV live in resource-poor settings where the availability of second line treatments is scarce, so there is a concern that switching therapies too early will exhaust all of the available options.

In order to determine the best course of treatments, the study recruited

266 children with HIV in 13 countries in Europe and North and South America and randomly assigned them to two groups,one receiving PI-based combinations and the other given NNRTI-based combinations. Each group was further divided into two subgroups with different thresholds for switching to second line therapy.

The results show that the two treatment regimens are equally effective over the long term. Seventy-one per cent of the children in the study were still on their first line treatment after an average of five years' follow-up.

The trial also showed that waiting until the levels of virus have reached a higher threshold before switching to second line therapy is acceptable practice, especially for treatments containing PI. However, in one in 10 children who started on NNRTI-combination therapy, delaying the switch led to the virus developing resistance to other drugs in the combination, which may mean that subsequent treatment regimens are less effective.

The study was co-chaired by Dr. Gareth Tudor-Williams, from the Department of Medicine at Imperial College London, with colleagues from the European Paediatric Network for the Treatment of AIDS (PENTA), and the International Maternal Pediatric Adolescent AIDS Clinical Trials Group (IMPAACT).

"The publication of this manuscript represents a decade's worth of endeavour, from the time we had the original concept to concluding the long-term follow-up," Dr. Tudor-Williams said. "Some of the earliest enrollees into the trial participated for seven years.

"We're still involved with a number of sub-studies, which will lead to further publications in the next year. But there is a lesson here for Imperial researchers: clinical trials with long-term endpoints are slow to

come to fruition, and can't compete with basic and laboratory-based scientific studies in terms of speed or quantity of output!

"I would like to acknowledge a very large number of colleagues who have worked so well together across many different time zones and many years, to publish this work. I would also like to thank all the children and their families who took part."

Provided by Imperial College London

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