

Title: Umbilical Cord Blood Stem Cell Transplantation – A novel road to the cure of HIV/AIDS

HIV infects cells of the immune system, some of which reside in reservoirs, such as lymph nodes. Eradicating all HIV infected cells using methods developed for other diseased immune cells, e.g. cancers, is a highly promising treatment strategy.

The report by UNAIDS, the United Nations program on HIV/AIDS, said that 19 million of the 35 million people living with the virus globally do not know their HIV—positive status and so ending the AIDS epidemic by 2030 will require smart scale—up to close the gap.

Unfortunately, HIV prevalence in India is estimated 0.3%. This figure is small compared to most other middle-income countries but because of India's huge population (1.25 billion) this equates to 2.1 million people living with HIV. In 2013, an estimated 130,000 people died from AIDS-related illnesses. India has the third-highest number of people living with HIV in the world, about 4 out of 10 people infected with the deadly virus in the Asia—Pacific region, according to a UN report. To bring a cure for the existing patients, world's first clinical trial which aims to cure five HIV patients within three years using transplants of blood from umbilical cords is set to start in Spain. The project seeks to be the world's first clinical trial of its kind by recreating the success of Timothy Ray Brown - the only living person ever to be completely cured of HIV, known as "the Berlin patient".

Plans for the clinical trial were announced during the hematology conference in Valencia by Spain's National Organisation of Transplants (ONT). ONT has selected 157 donors that have a genetic mutation which allows them to resist HIV, 'The Local' reported. "The Berlin patient", Brown, was an HIV-positive American living in Berlin in 2006 when he was diagnosed with leukemia. He needed a transplant to treat the cancer, so his doctor decided to use a donor with a certain cellular mutation that is resistant to HIV. After Brown received two stem cell transplants from the donor's bone marrow, his levels of HIV decreased dramatically. He is now cancer-free and only traces of the virus can be found, but they cannot reproduce. Doctors last year said they successfully performed a similar procedure on a man in Barcelona with lymphoma, but he died of the cancer not long after and they were unable to verify whether the disappearance of the virus was long-term. To see if Brown's and the Barcelona patient's cases can be replicated, the ONT project will look for HIV patients who also have leukemia, lymphoma, or similar illnesses. The treatment will be more similar to that of the Barcelona patient because doctors will transplant umbilical cord blood into the patients, rather than Brown's stem cell transplant procedure. Doctors hope to begin treatments for the first patient between December and January in Madrid.

References

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