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(1h 30 min)

Is the HIV 'functional cure' the breakthrough it seems? -The Guardian 05/03/2013

Scientists on a quest to cure HIV will be enormously encouraged, as well as intrigued, by the reports from Mississippi in the US of a two-year-old child who had the virus at birth but who is now apparently free of it. It sounds like one of those serendipitous breakthroughs that have characterised the fight against HIV and Aids, such as the discovery that some African sex workers are resistant to the virus and the realisation that people taking antiretroviral drugs, which suppress the levels of HIV in the body, are unlikely to infect their partners.

But is this the big one? Have doctors stumbled across the cure for HIV? Unfortunately not. This is progress and will open up new avenues for scientists to explore, but the implications for those already infected or even the still significant numbers of babies born with the virus in the developing world are sadly probably slight. The Mississippi baby became infected because the mother had not been tested in early pregnancy. If she had, the woman would have been put on antiretroviral drugs, the baby would have been delivered by caesarean section and then given a short course of drugs – all of which would almost certainly have prevented transmission of HIV from mother to child. When doctors realised the mother had HIV, it was too late for the standard prevention package, so they implemented plan B, which was to put the baby on the full three-drug cocktail straight away. It is already known that the sooner after infection an adult goes on the drugs, the better the outcome. But here, it seems, the drugs hit the virus so hard and so early that it all but disappeared. This is what scientists call a "functional cure". Traces of the virus remain, but they are inactive even though the mother disappeared from follow-up and the baby was off drugs for five months. This was the serendipitous event – other babies will have been treated the same way but remain on the drugs, so it is impossible to know whether they are HIV-free or their HIV is just drug-suppressed. And the scientists are anxious they should not stop the drugs now as a result of this case. One HIV-free baby may be exceptional. There could be some reason, as yet unknown, why this baby is different from others. Hopefully, scientists will establish that any newborn baby can be functionally cured in this way. But they do not expect the same to be true of children whose HIV infection is discovered later – let alone adults. They think this has to do with hitting the virus at the earliest possible moment after birth, before it has reached the CD4 cells in the immune system which harbour a reservoir of HIV in adults that the drugs are never quite able to wipe out. The Mississippi baby was unusual, because the vast majority of pregnant women in wealthy countries are tested for HIV and most infections in babies are prevented – in the UK as many as 98%. That is not so in poorer countries. In the developing world, there is still a big and tragic problem. In 2008, the latest year for which there are figures, 430,000 babies were infected at birth. That is a drop in the numbers, but far too high and desperately sad for parents and child. It might seem as though the Mississippi baby breakthrough will, therefore, save thousands of lives in the 25 countries in sub-Saharan Africa, where most of these infections are taking place. But there is already a way of preventing these infections using drugs – which is far better than a functional cure using similar drugs. The problem is not how to do it – it is to ensure the drugs and the medical staff are in the right place at the right time to treat mother or baby or both. There are plenty of pregnant women in Africa known to have HIV who cannot get the treatment they want and need to protect their child. It is not very likely that the clinics they attend will instead have the three-drug combinations that the Mississippi baby received from skilled nursing staff within hours of birth. Real excitement is justified by the Mississippi discovery – but it is what it tells scientists still trying to figure out how to defeat HIV that matters. Any practical applications are a long way further down the line.

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