

STEM CELL THERAPY CURES HIV

The holy grail of complete cure in HIV disease has been tantalizingly out of reach so far. Ravindra Gupta, an infectious disease physician in the University of Cambridge, and his team report a case who is now virus-free for 18 months. The patient who had Hodgkin lymphoma underwent a hematopoietic stem cell transplantation with a donor who had a specific homozygous mutation in the *CCR5* gene that grants resistance to the HIV virus. Antiretroviral drugs were stopped 16 months after transplant. Plasma HIV RNA and HIV DNA in CD4 lymphocytes have been undetectable 18 months after stopping the drugs.

A decade ago, the same technique had been used in a patient famously called “The Berlin Patient.” He also has been in remission after stem cell transplantation. However he had undergone a much more aggressive conditioning, including total body irradiation. In the patient from Oxford, less aggressive chemotherapy was used, and he received no radiotherapy.

This case has reignited interest in possible cures for HIV targeting the *CCR5* gene. Homozygous *CCR5*-delta32 mutation is seen in 1% of people from Northern Europe, especially in Swedes. Researchers say that this mutation has been around for more than 700 years. The reason is probably a survival advantage against other epidemics like small pox. The study of rare mutations may well open doors to therapy of deadly diseases. (*Nature* 5 March 2019)

ARTIFICIAL INTELLIGENCE INVADES PEDIATRICS

Zhang, *et al.* from the University of California have developed an Artificial Intelligence (AI) system, which was trained using 1.3 million records of pediatric patients from a major medical center in Guangzao, China. The system used deep learning techniques and demonstrated a remarkable accuracy in diagnosing common conditions such as influenza and hand-foot-mouth disease, and dangerous or life-threatening conditions such as acute asthma and meningitis.

The team compared the model’s accuracy to that of 20 pediatricians with varying years of experience. It outperformed the junior pediatricians; though, the senior ones did better than the AI. In busy hospitals, it may be useful in triaging patients. For common illnesses, it has an accuracy of 90-97%. It is not perfect but then neither are doctors. The flip side is that pediatricians in training may lose out on developing their clinical gestalt, or that undefinable quality called judgement, once these algorithms take over. (*Nature Medicine*. 2019;25:433-38)

WHO RECOMMENDATIONS ON EXERCISE

If exercise was a pill, it would be a blockbuster. It is a truth well known and oft disregarded, that even small amounts of exercise cut your risk of all cause mortality of a myriad illnesses ranging

from heart disease to colon cancer. The WHO has now published global recommendations for physical activity for all age groups.

For healthy children between 5-17 years, it is vital that they participate in moderate to vigorous physical activity for atleast 60 minutes daily. This must be aerobic exercise, and there must be vigorous intensity exercise which strengthen muscle and bone atleast 3 times a week. The 60 minutes may be divided in two or more time intervals. If children are currently doing no physical activity, doing amounts below the recommended levels will bring more benefits than doing none at all. They should start with small amounts of physical activity and gradually increase duration, frequency and intensity over time.

Adults aged 18-64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity. Aerobic activity should be performed in bouts of at least 10 minutes duration. For additional health benefits, adults should increase their moderate-intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity activity. Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.

Exercise has a cumulative benefit and the important point is to move one’s body and not necessarily push our physical limits. (https://www.who.int/dietphysicalactivity/factsheet_adults/en/)

GOVERNMENT LAUNCHES ELECTRONIC HEALTH SURVEILLANCE SYSTEM

“Data is power” said Preeti Sudan, Union Health Secretary, as she launched a new state-of-the-art, information platform for public health surveillance in seven Indian states. The platform was created to strengthen early outbreak detection and inform public health response. She also shared that for effective implementation of the platform, 32,000 people at the block level, 13,000 at the district level and 900 at the state level have been trained.

It is a real-time, village-wise, case-based electronic health information system with GIS tagging to provide prompt prevention and control of epidemics. It will enable the development of electronic case records that will be accessible throughout the country. (<https://medicalnewsindia.com/govt-launches-information-platform-monitor-public-health-surveillance/>)

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