Invited Short Review

How 'diabetes egg-box' can save some HIV-patients from additional disease?

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Antiretroviral drugs have greatly extended the life span of HIV-infected persons, but research suggests they are in high risk of developing diabetes (Nduka et al., 2017). A new tool to preserve vital cells for diabetes treatment can help people with both conditions.

Keywords: HIV, antiretroviral therapy, diabetes

Scientists can now save most pre-transplant 'islet cells' derived from donors that are vital to restore insulin production in Type 1 diabetes patients. This is important news for HIV positive people, who are on antiretroviral therapy (ART).

New research suggests HIV-infected patients on ART are at high risk of developing diabetes or prediabetes. Additionally, age, family history of diabetes, obesity and Hispanic or Black origins can increase the risk of the disease for them (Nansseu et al., 2018), just when breakthroughs in ART made it possible to live with the virus as long as healthy people.

The interplay between prediabetes/diabetes and antiretroviral drugs has been established, but more research is needed (Rucker et al., 2018). Scientists think the WHO recommendation of initiating ART soon after an HIV diagnosis regardless of the age of the patient, or the key indicator of their CD4 immune cell count could be an explanation (Maganga et al., 2015).

Currently there is no cure for the various types of diabetes. However, in the case of Type 1, there is a way to save people from having to constantly check their insulin-levels and be exposed to complications with their eyes, kidneys and their nervous and cardio-vascular system. The method involves transplanting 'islet cells' from donors into patients, but there is a problem.

It's accomplished by a keyhole surgery involving injecting the cells into the liver or between the muscles of patients, which usually results in quick improvement. Healthy islets cell then correctly regulate the blood sugar levels in patients' pancreases.

The problem is that once the islet cells are harvested from the donor, they become extremely vulnerable and die easily in transport. The small number of donors makes it important to

preserve these cells. Scientists have invented a miniscule 'egg-box' that protects these cell clusters from physical damage and supplies them with the required nutrients and oxygen.

Only HIV-infected patients with Type 1 diabetes can benefit from this biomedical tool. In the meantime researchers emphasise the importance of education campaigns. Diabetes patients need to check their HIV-status and HIV-infected people on ART need to make nutritional and other lifestyle changes to mitigate the possibility of developing diabetes (Ekrikpo et al., 2018).

References

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