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Association between levodopa and ischemic heart disease

Orayj, K[1*], Lacey, A[2], Akbari, A[2], Smith, M[1], Pickrell, O[2], and Lane, E[1]

[1]Cardiff University

[2]Swansea University

Background

Several studies linked the use of levodopa to an increase in homocysteine level, which can lead eventually to ischemic heart disease (IHD) in Parkinson's disease (PD) patients. There is a lack of large population studies that have investigated the cardiovascular safety of levodopa.

Objectives

The main objective of the study is to investigate the one-year risk of IHD hospitalisation, all-cardiovascular hospital hospitalisation, and all-cause mortality among users of L-dopa compared with users of Monoamine oxidase B (MAO-B) inhibitors (as a reference).

Methods

A population-based study evaluated data obtained from the Secure Anonymised Information Linkage (SAIL) Databank of residents in Wales, aged 40 years or older, newly treated with PD medications between 2000 and 2016. The General Practice (GP) database was used to identify the PD diagnostic codes, PD medications, and other medications used by PD patients. Hospital data were used to identify the first hospitalisation event (IHD and other cardiovascular events). A fully adjusted propensity score multivariate Cox regression analysis was used to examine associations between levodopa and the study outcomes. The index date was set at the date of the first PD prescription in the newly diagnosed PD patients. Other variables included gender, comorbidities, social deprivation score and previous medications history were controlled for.

Findings

There were 5,140 participants on levodopa and 494 on MAO-B inhibitors. L-dopa was not associated with IHD (p=0.561), other cardiovascular events (p=0.233), or all-cause mortality (p=0.334). For IHD, the lack of difference was seen also in the unadjusted model and in the age-only adjusted model.

Conclusions

This study has shown that L-dopa does not increase the risk of IHD, cardiovascular risk, or all-cause mortality in the newly diagnosed PD patient within one year after the therapy initiation. This could contribute to the safety profile of L-dopa therapy. Future research with a longer follow up period is warranted.

*Corresponding Author:
Email Address: Orayjk@cardiff.ac.uk (K Orayj)

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