Medical Dialogues (26.03.2022)

Long-term metformin use lowers risk of neurodegenerative diseases in diabetics: Study

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China: Metformin use, particularly long-term use is tied to a lower risk for developing neurodegenerative diseases, suggests meta-analysis of population-based cohort studies. More randomized controlled trials however are needed for confirming the data, the researchers add. The study was published in the journal *Diabetic Medicine* on 23 February 2022.

Neurodegenerative diseases are progressive disorders of the central nervous system characterized by loss of neuron function and structure. Metformin is a first-line anti-diabetic drug that has recently attracted considerable attention owing to its neuroprotective effects. However, the association between metformin use and the onset of neurodegenerative disease remains controversial.

Against the above backdrop, Yunnan Zhang and his team from China aimed to determine the relationship between metformin use and ND risk based on data from population-based cohort studies in the systematic review and meta-analysis.

For this purpose, the researchers systematically searched articles in PubMed, EMBASE, and Cochrane Library databases. Using a random-effects model they obtained pooled relative risks (RRs). Subgroup analyses, sensitivity analyses, and meta-regression were performed for identifying the sources of heterogeneity and strengthening the results.

12 population-based cohort studies consisting of 194,792 participants (94,462 metformin users and 100,330 metformin non-users) were deemed eligible for inclusion in this meta-analysis.

Based on the review, the researchers found the following:

The pooled RR of NDs reached 0.77 when comparing metformin users with non-users. The effects were more prominent in long-term metformin users (≥4 years) (RR 0.29) and studies from Asian countries (RR 0.69).

The effect estimates were stable when stratified by subtypes of NDs, study designs, and control definitions.

Meta-regression did not identify the coefficients as the sources of heterogeneity.

"The findings showed that metformin use, especially long-term use, was associated with lower ND risk," wrote the authors. "However, because of the substantial heterogeneity among studies, high-quality randomized controlled trials will be required to confirm this finding."

Reference:

The study titled, "Metformin and the risk of neurodegenerative diseases in patients with diabetes: A meta-analysis of population-based cohort studies," was published in the journal *Diabetic Medicine*.