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### STROKE AND THE RISK OF SUBSEQUENT DIABETES BY POST-STROKE DISABILITY STATUS AND STROKE TYPE

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#### INTRODUCTION

Stroke shares common risk factors with diabetes mellitus, but little is known about the risk of diabetes in stroke survivors. As such, this study aimed to compare the risk of diabetes in stroke survivors to a matched control group for post-stroke disability and stroke type.

#### METHODOLOGY

This retrospective cohort study used data from the Korean National Health Insurance System (KNHIS) database (2010–2018) and included a total of 217,157 patients with stroke and a 1:1 matched comparison group. Stroke survivors were grouped based on the severity of their disability. The primary outcome was to assess the incidence of newly diagnosed diabetes, as based on ICD-10 codes. A Cox proportional hazard regression analysis was used to calculate the hazard ratios of diabetes after adjusting for potential confounders.

#### RESULTS

Stroke survivors had a 15% higher risk of subsequent diabetes (adjusted hazard ratio (aHR) 1.15, 95% confidence interval (CI) 1.12–1.18) compared to individuals without stroke. There was no discrepancy with the severity of disability; those with mild disability (aHR 1.17, 95% CI: 1.10 – 1.24), and those with severe disability (aHR 1.18, 95% CI 1.08 – 1.29). Importantly, the risk of diabetes was increased among individuals who experienced an ischemic type of stroke relative to a matched group (aHR 1.19, 95% CI: 1.16 – 1.22 for those without disability, and aHR 1.21, 95% CI: 1.14 – 1.28 for those with disability). There was no significant difference in diabetes risk in hemorrhagic stroke survivors (aHR 0.99, 95% CI: 0.94 – 1.04 for those without disability and aHR 1.08, 95% CI: 0.97 – 1.19 for those with disability).

#### CONCLUSION

Our findings showed a significant association between stroke, particularly ischemic stroke, and an increased risk of subsequent diabetes. There was no significant difference in the risk of diabetes among those with hemorrhagic stroke and between those with and without disability, regardless of disability severity. Consequently, it is crucial to include diabetes prevention and treatment strategies as an integral part of stroke management.

#### KEYWORDS

stroke, diabetes mellitus, disability, cohort, nationwide