


# The Glycaemic Gap is not a Reliable Prognostic Biomarker for Predicting Post-Stroke Cognitive Impairment [Letter]

Sinda Zarrouk, Josef Finsterer 

Neurology Department, Neurology and Neurophysiology Center, Vienna, Austria

Correspondence: Josef Finsterer, Neurological Department, Neurology and Neurophysiology Center, Postfach 20, Vienna, 1180, Austria, Tel/Fax +43 1 5861075, Email [fifigs1@yahoo.de](mailto:fifigs1@yahoo.de)

## Dear editor

We read with interest the article by Min et al on the relationship between the glycaemic gap and cognitive function, which was assessed using the Beijing edition of the Montreal Cognitive Assessment (MoCA) after ischemic stroke or transient ischemic attack (TIA).<sup>1</sup> Of 767 stroke patients, one-third showed post-stroke cognitive impairment (PSCI) three months after the stroke and 30% after one year.<sup>1</sup> The glycaemic gap correlated positively with PSCI in the three-month follow-up.<sup>1</sup> The study is impressive, but some points should be discussed.

The first point is that apparent cognitive impairment may also be due to post-stroke depression or depression due to other causes.<sup>2</sup> Since the Beijing edition of the MoCA does not assess the degree of depression, depression may have been overlooked as the cause of cognitive impairment in at least some of the patients included. As long as depression has not been ruled out as the cause of the poor MoCA results, the presented results are not reliable.

The second point is that the location and extent of the stroke were not included in the analysis.<sup>1</sup> A frontal stroke can affect cognitive functions differently than a stroke caused by occlusion of the middle cerebral artery or posterior cerebral artery.<sup>3</sup> Strokes in the left hemisphere can impair different cognitive functions than strokes in the right hemisphere, and supratentorial strokes can lead to a different type of cognitive impairment than strokes in the brain stem. A stroke in the left hemisphere can impair language, logical thinking, and verbal memory. Strokes in the right hemisphere can impair spatial and visual-perceptual abilities, memory, visual-spatial memory, and emotional processing. Frontal strokes can impair executive functions, while temporal strokes can impair episodic memory. Unless the location of the stroke is included in the analysis, the data presented may be misleading.

The fourth point is that cognitive impairments due to non-stroke causes that developed within the three-month and one-year follow-up periods were not included in the analysis.<sup>1</sup> Before the results after the three-month and one-year follow-up periods can continue to be attributed to the previous stroke, other causes that occurred during these follow-up periods must be convincingly ruled out.

Finally, TIA patients should not show any cognitive deficits at the three-month and one-year follow-up examinations. Therefore, these patients are not really suitable for assessing the development of cognitive deficits during this period. TIA patients should be excluded from the assessment.

Overall, the glycaemic gap does not appear to be a reliable prognostic biomarker for predicting PSCI.

## Disclosure

The authors report no conflicts of interest in this communication.

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