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A beneficial effect of L-arginine for stroke-like episodes is currently unsupported

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Letter to the Editor

We read with interest the article by Ganetzky et al. about a retrospective study of 17 stroke-like episodes (SLEs) in 9 patients with a mitochondrial disorder (MID) being treated with L-arginine [1]. Forty-seven percent of the SLEs responded beneficially to L-arginine [1]. We have the following comments/concerns.

Assuming that SLEs result from vasospasm due to impaired NO flux, why are these vasospasms followed by a vasogenic edema (DWI hyperintense, ADC hyperintense) in the acute stage of a stroke-like lesion (SLL), the morphological equivalent of a SLE, and not by a cytotoxic edema [2,3]? Vaspospasms occur frequently after subarachnoid bleeding and cause cerebral ischemia either in form of lacunar strokes or in form of ischemia in smaller or lager territories of intracerebral arteries [4]. Why is a stroke-like lesion not confined to a vascular territory, which should be the case if it was due to a spasm of an artery? Why is the clinical presentation of SLEs dissimilar from an ischemic stroke if vasospasm is pretended to cause the SLE? These three facts strongly argue against the vascular hypothesis to explain a SLL.

The single center, retrospective design of the study is inappropriate to test the effect of a drug. Additionally, 70% were taking already L-arginine or L-citrulline at occurrence of the SLE, suggesting that L-arginine is ineffective to prevent a SLE [1]. Though it is difficult to apply a double-blind placebo-controlled, cross-over (DBPCCO) design, the effect of L-arginine or L-citrulline can be reliably tested only in a multicenter DBPCCO study.

Overall, the presented study does not allow concluding that L-arginine is beneficial for SLEs in MID patients. Not only the pathogenetic concept is unsupported by current knowledge but also the study design is inappropriate. Currently, SLEs, which present with a broad spectrum of clinical manifestations, can be treated only symptomatically.

Conflict of interest

There are no conflicts of interest.

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Author contribution

JF: design, literature search, discussion, first draft, SZ-M: literature search, critical review.

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