



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

Josef Finsterer, Sinda Zarrouk-Mahjoub

► To cite this version:

Josef Finsterer, Sinda Zarrouk-Mahjoub. A beneficial effect of L-arginine for stroke-like episodes is currently unsupported. *Molecular Genetics and Metabolism Reports*, 2018, 15, pp.67-68. 10.1016/j.ymgmr.2018.02.006 . pasteur-02009159

HAL Id: pasteur-02009159

<https://riip.hal.science/pasteur-02009159>

Submitted on 6 Feb 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial - NoDerivatives 4.0
International License



Correspondence

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



ARTICLE INFO

Keywords:

Mitochondrial
Mitochondrion
mtDNA
Stroke
Stroke-like lesion
MRI

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]? Vasospasms occur frequently after subarachnoid bleeding and cause cerebral ischemia either in form of lacunar strokes or in form of ischemia in smaller or larger 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.

Funding

No funding was received.

Author contribution

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

References

- [1] R.D. Ganetzky, M.J. Falk, 8-year retrospective analysis of intravenous arginine therapy for acute metabolic strokes in pediatric mitochondrial disease, *Mol. Genet. Metab.* (2018) pii: S1096-7192(18)30061-1 <https://doi.org/10.1016/j.ymgme.2018.01.010>.
- [2] J.H. Kim, M.K. Lim, T.Y. Jeon, J.H. Rha, H. Eo, S.Y. Yoo, C.H. Shu, Diffusion and perfusion characteristics of MELAS (mitochondrial myopathy, encephalopathy, lactic acidosis, and stroke-like episode) in thirteen patients, *Korean J. Radiol.* 12 (2011) 15–24.

<https://doi.org/10.1016/j.ymgmr.2018.02.006>

Received 20 February 2018; Accepted 20 February 2018

Available online 26 February 2018

2214-4269/ © 2018 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

- [3] J. Finsterer, Stroke and stroke-like episodes in muscle disease, *Open Neurol. J.* 6 (2012) 26–36.
- [4] J.S. Dority, J.S. Oldham, Subarachnoid hemorrhage: an update, *Anesthesiol. Clin.* 34 (2016) 577–600.

Josef Finsterer^{a,*}, Sinda Zarrouk-Mahjoub^{b,1}

^a *Krankenanstalt Rudolfstiftung, Vienna, Austria*

^b *University of Tunis El Manar and Genomics Platform, Pasteur Institute of Tunis, Tunisia*

E-mail address: ffigs1@yahoo.de

* Corresponding author at: Postfach 20, 1180 Vienna, Austria.

¹ Both authors contributed equally.