Amino Acids (2012) 42:2037–2038
DOI 10.1007/s00726-011-0845-y

LETTER TO THE EDITOR

May GABA transaminase inhibitors improve stereotyped behaviors in Rett syndrome?

Ahmad Ghanizadeh

Received: 29 November 2010 / Accepted: 4 February 2011 / Published online: 23 February 2011

The subtle dysfunction of GABAergic neurons is a partial cause of the autism-like stereotypies and Rett syndrome phenotypes (Chao et al. 2010). Others also reported that augmenting GABA effect improves the incidence of apnea and periodic breathing and corrects cycle irregularity in mouse model of Rett syndrome (Abdala et al. 2010).

The role of GABA in the neuroanatomical and neurofunctional abnormalities in autism spectrum disorder is widely discussed (Murphy et al. 2011). The GABA level and the ratio of GABA to glutamate in frontal lobe in autism are significantly lower than that of the control group (Harada et al. 2011). GABA(A) receptors are reduced in the brain of individuals with autism (Fatemi et al. 2009b; Oblak et al. 2011). The density of GABA(B) receptors in autism is also less than the control controls (Fatemi et al. 2009a; Oblak et al. 2010).

GABAergic neurons are the primary source of GABA synthesis in the brain. GABA transaminase catabolizes GABA in both neurons and astrocytes. Vigabatrin reduces GABA catabolism. It irreversibly inhibits GABA transaminase (Tolman and Faulkner 2009).

The neurobiology of stereotypy in autism is not free from clouds (Ghanizadeh 2010, 2011). In addition, while antipsychotics are suggested for its management, the role of drugs for its treatment is not clear and well studied (Ghanizadeh 2010, 2011).

Taking into account that the need for providing drugs for treatment of stereotypies (Ghanizadeh 2010, 2011), the role of GABAergic neurons for stereotypies (Chao et al. 2010), the hypofunction of GABA system in autism in brain (Harada et al. 2011), the role of GABA transaminase in catabolizing GABA (Tolman and Faulkner 2009), it seems reasonable to hypothesize that GABA transaminase inhibitors such as Vigabatrin may improve stereotypies in autism and Rett syndrome. It is worthwhile to conduct clinical experimental studies on animal models of autism.

It is noticeable that there is a significant risk of visual loss which may actually be more frequent in older children than in younger patients with infantile spasms for whom vigabartin is now used for treatment (Gaily et al. 2009). Possible increased behavioral and cognitive effects such as agitation, irritability, psychosis and depression must also be considered as potential adverse effects in any trial (Cavanna et al. 2010).

Conflict of interest The author states no conflict of interest.

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A. Ghanizadeh (✉)
Department of Psychiatry, Research Center for Psychiatry and Behavioral Sciences, Shiraz University of Medical Sciences, Hafez Hospital, Shiraz, Iran
e-mail: ghanizad@sina.tums.ac.ir

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