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Editorial

The cerebellum seems not a 'little brain' for the autonomic nervous system

See Article, pages 189–195

Neurogenic postural hypotension is a debilitating condition in patients with Parkinson's disease, multiple system atrophy (MSA), autoimmune autonomic ganglionopathy, and advanced diabetic neuropathy (Palma and Kaufmann, 2017). Pathology for this condition are mostly peripheral (periarterial nerves innervating alpha 1B receptors on the vessel wall), and in MSA, spinal intermediolateral nucleus and medullary A1,2/C1,2 neurons are the responsible sites. In pure autonomic failure (lesion overlaps that of Parkinson's disease), cingulate and medial frontal pathology is contributing to postural hypotension (Hirano et al., 2009). Postural hypotension affects the quality of life of patients, but also affects cognition and emotion (Heims et al., 2006; Critchley et al., 2013). In this issue of *Clinical Neurophysiology*, Baker and colleagues studied 15 subjects (pure autonomic failure, 3; Parkinson's disease, 7 (peripheral for postural hypotension); idiopathic, 5 (presumably peripheral) by lower body negative pressure [that parallels postural hypotension and fits for brain imaging in the lying position]). They found, as compared with healthy controls, less activation in the cerebellum (Baker et al., 2019). The cerebellum plays an important role in vestibulo-sympathetic reflexes, cardiovascular, and bladder autonomic function (Sakakibara, 2015). This is because the cerebellum has dense projects to and from the prefrontal and cingulate cortex, which serve as anatomical substrates for cognition and emotion by the cerebellum (Fig. 1) (Guell et al., 2015; Adamaszek et al., 2017). The findings of Baker et al. (2019) are important, as they strongly suggest that the cerebellum seems not a 'little brain' for the autonomic nervous system.

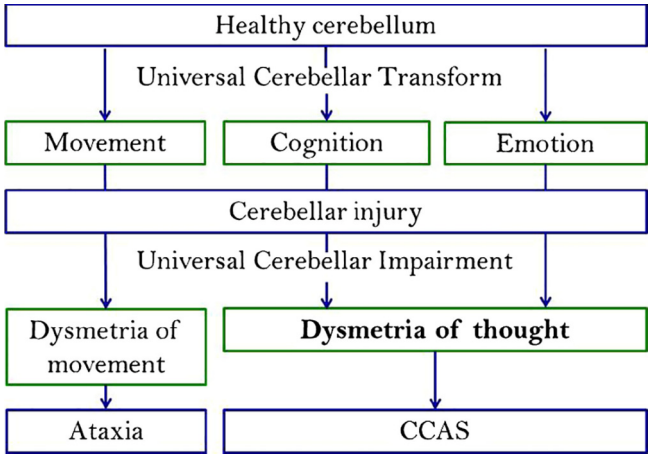

Fig. 1. A neuronal circuit that participates in the cerebellar cognitive/affective syndrome (CCAS). Reproduced with permission (from Guell et al., 2015).

Conflict of interest statement

None.

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