Globus pallidus internus

The medial globus pallidus (or internal, GPi) is one of the output nuclei of the basal ganglia (the other being the substantia nigra pars reticulata). The GABA-containing neurons send their axons to specific nuclei of the dorsal thalamus (VA and VL), to the centromedian complex and to the pedunculopontine complex.

The efferent bundle is constituted first of the ansa and fasciculus lenticularis, then crosses the internal capsule as the Edinger's comb system then arrives at the laterosuperior corner of the subthalamic nucleus and constitutes the Forel's field H2, then H, and suddenly changes its direction to form H1 that goes to the inferior part of the thalamus. The distribution of axonal islands is widespread in the lateral region of the thalamus. The innervation of the central region is done by collaterals.

The internal segment of the globus pallidus (GP(i)) gathers many bits of information including movement-related activity from the striatum, external segment of the globus pallidus (GP(e)), and subthalamic nucleus (STN), and integrates them. The GP(i) receives rich GABAergic inputs from the striatum and GP(e), and gamma-aminobutyric acid (GABA) receptors are distributed in the GP(i) in a specific manner. Thus, inputs from the striatum and GP(e) may control GP(i) activity in a different way. The GP(i) finally conveys processed information outside the basal ganglia. Changes in GABAergic neurotransmission have been reported in movement disorders and suggested to play an important role in the pathophysiology of the symptoms [1)].

Pallidal Deep Brain Stimulation

see Pallidal Deep Brain Stimulation.

1)
Nambu A. Globus pallidus internal segment. Prog Brain Res. 2007;160:135-50. Review. PubMed PMID: 17499112.

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