Centromedian nucleus

- Deep Brain, Deep Impact: Rethinking Pediatric Epilepsy Treatment With Deep Brain Stimulation of the Centromedian Nucleus
- Diet-incorporated saracatinib, a Src tyrosine kinase inhibitor, counteracts diisopropylfluorophosphate (DFP)-induced chronic neurotoxicity in the rat model
- Systematic Review and Meta-Analysis of Bilateral Centromedian Nucleus Neuromodulation for Multifocal and Generalized Epilepsy
- Refining centromedian nucleus stimulation for generalized epilepsy with targeting and mechanistic insights from intraoperative electrophysiology
- Dual bilateral stimulation of the nucleus accumbens and the centromedian thalamus for treatment of intractable Tourette syndrome
- Chronic thalamic recordings for idiopathic generalized epilepsy and Lennox-Gastaut syndrome: Ictal and interictal electrophysiological findings
- In vivo silencing of the thalamic Ca(V)3.1 voltage-gated calcium channels demonstrates their region-specific role in anesthetic mediated hypnosis
- Trends in Thalamic Stereoelectroencephalography Utilization During Phase II Monitoring in North America: A Survey

The **centromedian nucleus (CM)** is a key part of the **intralaminar nuclei** of the **thalamus**, and it's involved in a variety of important functions, especially in **arousal, attention, sensorimotor integration**, and **modulation of basal ganglia circuits**.

Basic Anatomy

- **Location**: In the posterior intralaminar thalamus. - **Group**: Intralaminar thalamic nuclei. - **Adjacent structures**: Mediodorsal nucleus (medially), pulvinar (posteriorly), ventral posterior nuclei (laterally).

Connections

- **Afferents**:

1. **Brainstem reticular formation**: involved in arousal and consciousness.
2. **Spinal cord**: nociceptive input.
3. **Cerebellum**: via the dentatothalamic pathway.

- **Efferents**:

1. **Striatum** (especially the putamen and caudate): influences motor control through basal ganglia circuits.
2. **Cortex** (especially frontal and parietal): modulates attention and awareness.

Functions

- **Arousal and consciousness**: Part of the ascending reticular activating system (ARAS). - **Pain**

perception: Relays nociceptive input to cortex. - **Motor control**: Via basal ganglia-thalamocortical loops. - **Cognitive and attentional modulation**: Projects to associative cortical areas.

Clinical Relevance

- **Epilepsy**: CM is a target for **deep brain stimulation (DBS)**, particularly in **generalized epilepsy** or **Lennox-Gastaut syndrome**. - **Parkinson's disease and dystonia**: As part of basal ganglia circuits, CM-DBS has been explored as a potential therapy. - **Disorders of consciousness**: Because of its role in arousal, CM stimulation has been tested in patients with coma or vegetative state.

Thalamic centromedian nucleus deep brain stimulation

see Thalamic centromedian nucleus deep brain stimulation.