

# Anaesthetic considerations in a patient with Kernicterus for stereotactic bilateral insertion of deep brain stimulation (DBS) electrodes into internal globus pallidus (Gpi) nuclei.

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## BACKGROUND:

The case we report is about the anaesthetic management of a patient with kernicterus undergoing surgery of DBS of GPi. **Kernicterus** is a rare neurological complication of indirect hyperbilirubinemia caused by deposits in newborns in GPi that inhibits some important biochemical processes, causing: involuntary movements, asymmetric spasticity, rigidity and ataxia.

## CASE REPORT:

**PATIENT:** 40 y.o. ASA II female.

**RELEVANT HISTORY:** generalized dystonia, cervical dystonia and chronic pain. Previous long anaesthetic awakenings.

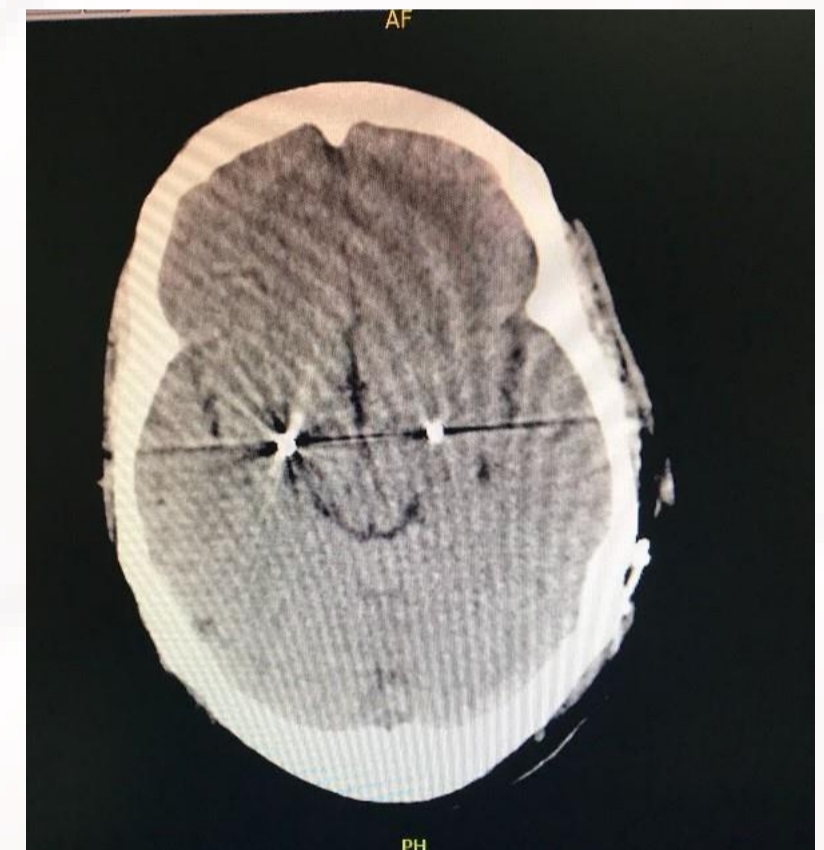
**Stereotactic bilateral placement of electrodes in GPi**, guided by computed tomography and under **general anaesthesia (GA)**.

## INDUCTION:

- The patient was monitored with invasive blood pressure, electrocardiogram, pulse oximetry, capnography and bispectral index (BIS).
- The anaesthesia was induced with 2mcgr/kg fentanyl; 1,5 mg/kg propofol and 0,6mg/kg rocuronium.
- Orotracheal intubation was performed next and patient was connected to mechanical ventilation.

## MAINTENANCE:

- TIVA:** Propofol infusion (<70mcgr/kg/min) with remifentanyl (0.02 mcgr/kg/min).
- Anaesthetic concentration** during **microelectrode recordings** was **reduced by 10%**.
- BIS** was maintained between **50-60** during surgery.



## EMERGENCE:

- Surgery continued uneventful and the patient was transferred to the post anaesthesia care unit; and extubated 2 hours later without complications.
- One week later the patient's cervical dystonia had improved and also, she referred less disability related to pain.

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## DISCUSSION:

DBS is a treatment for patients with disorders of movement which are refractory to conventional therapies. The most common anaesthetic techniques used in these patients are local anaesthesia or conscious sedation; because they allow for awake patients for intraoperative neurophysiological monitoring and avoid the confounding factor of anaesthetic agents for GPi localization<sup>1</sup>. In some cases, with severe uncontrolled dystonic or in children, GA is required for DBS insertion. Because the patient had severe dystonia it was believed that the best technique was to use **TIVA BIS-guided<sup>2</sup>**, attempting to reduce the doses as much as possible.

## LEARNING POINT:

**This report demonstrates that TIVA BIS-guided anaesthetic depth can be an anaesthetic technique for a successful localization and insertion of DBS in the GPi in patients with dystonia in kernicterus.**

**REFERENCES:** 1:Grant R. et al. *Curr Opin Anaesthesiol.* 2015;28 (5):505-10. 2:Venkatraghavan MD. et al. *J Neurosurg Anesthesiol.* 2016; 28 (3):256-61.