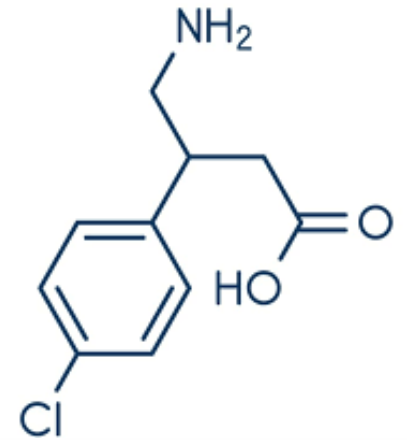


# BACLOFEN INTOXICATION AFTER MISPLACEMENT OF INTRATHECAL INFUSION CATHETER

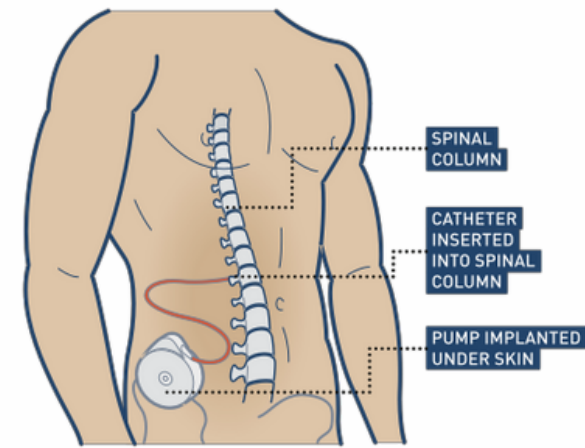
ANDREA NATALIZI (1)(2), FRANCESCA FELIZIANI (1)(2), ELISABETTA FRANCIOSINI (2) MATTEO BELLUCCI (2), ANGELO GIACOMUCCI (2)  
(1) Università di Perugia, Scuola di specializzazione in Anestesia e Rianimazione, Perugia, Italia.  
(2) S.C. Anestesia e Rianimazione 2, Unità di Terapia Intensiva, Azienda Ospedaliera di Perugia, Perugia, Italia.

## ABSTRACT

The **Baclofen intrathecal infusion pump** (Intrathecal baclofen-ITB) is a high-tech system indicated in the generalized treatment of spasticity in children and adults. The battery of the device is replaced approximately every 7 years. Baclofen is an **antispasmodic drug**, a centrally acting muscle relaxant, belonging to the class of derivatives of GABA. It is an agonist of GABA B receptors, which inhibit the release of some excitatory aminoacids, including glutamate and aspartate, that reduces involuntary muscle activity.

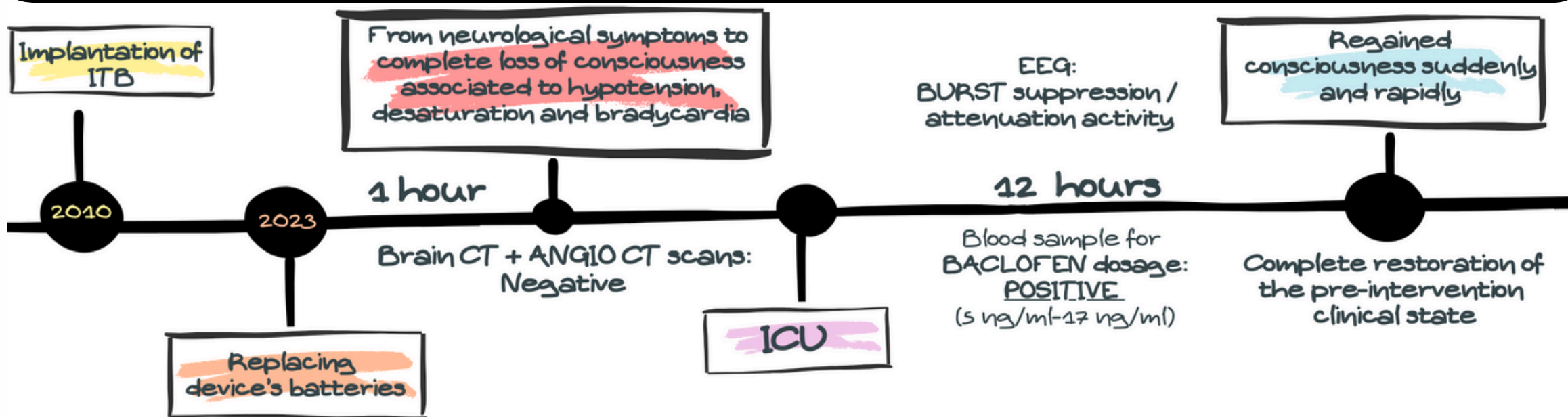


IMG: Baclofen



IMG: Baclofen intrathecal infusion pump (ITB)(1)

We present a case report about a 66-year-old woman with **complete post-traumatic tetraplegia** at C6 level on the right hemisome and C7 on the left. Due to spastic hypertonicity of the lower limbs with irradiation to the trunk muscles, in **2010 she underwent implantation of ITB**



## CASE REPORT

In October 2023 she underwent an outpatient replacement of the batteries. After local anesthesia, a surgical incision was made, the ITB was exposed, disconnected from the catheter and replaced. The procedure was performed **without complications and according to the guidelines**.

About an hour after the procedure, we witnessed the appearance of worsening neurological symptoms: from a state of confusion to complete **loss of consciousness with hypotension, desaturation and bradycardia**. Patient was unresponsive to stimuli, she had miotic pupils and dull reflexes. In the hypothesis of an acute cerebrovascular accident, she underwent brain CT + ANGIO CT scans which were negative. She was then admitted to the ICU where she underwent orotracheal intubation, was connected to the ventilator and underwent multiparametric monitoring. She was hypotensive, for which norepinephrine infusion was started. In the suspicion of non-convulsive status epilepticus, EEG and neurophysiopathological consultation were performed. EEG was characterized by symmetric **BURST suppression / attenuation activity**, still not reacting to acoustic or nociceptive stimulation. After a few minutes there was the onset of atrial fibrillation, not previously reported in her clinical history, which was treated DC shock at 150 j with rapid restoration of sinus rhythm. In consideration of the symptoms presented and consistently with the available literature, in the suspicion of **acute Baclofen intoxication**, the Local Poison Control Center of Pavia was contacted and recommended continuation of life support, interruption of the intrathecal infusion of Baclofen and plasma dosing. Blood samples were collected for drug dosage, which yielded a **POSITIVE** result (5 ng/ml and 17 ng/ml, N.R.: 3 ng/ml). Approximately 12 hours after admission, the patient regained consciousness suddenly and rapidly, with **complete restoration of the pre-intervention clinical state**. Norepinephrine infusion was stopped. After 24 hours of monitoring, the patient was transferred to the unipolar spinal unit.

## DISCUSSION

We present this clinical case, in which, due to catheter misplacement, the patient suffered an accidental i.v. bolus of Baclofen. The device recorded no injection of the drug, and the battery replacement procedure was performed according to guidelines and without complications.

Reviewing the literature, this is **the first case** in which a catheter placed in the intrathecal space caused acute intoxication due to systemic delivery of passage of the drug into the circulation. with the symptomatology also presented by Lee et. al(2): acute intoxication of patients receiving baclofen by mouth or intravenously presented with neurological manifestations (catatonia, disturbance of consciousness), tachycardia, hypotension, abnormal EEG, which is also reported by K Weissenborn et al(3).

The treatment used to resolve the patient's clinical condition was essentially support of vital functions until the effect was exhausted due to drug overdose, as also illustrated by Dease et al(4) and Chodorowski et al(5).

## CONCLUSION

This is the first reported case of baclofen toxicity due to misplacement of the intrathecal catheter. Such an event, though extremely rare, is to be taken into account during handling of the device, which is due to remain in place for many years. A thorough review of correct positioning, to avoid similar clinical cases, is therefore warranted.



## References

1. <https://spinalcordinjuryzone.com>
2. Clin Neuropharmacol 1992 Feb;15(1):56-62.
3. Clin Neurol Neurosurg. 1991;93(1):77-80. doi: 10.1016/0303-8467(91)90015-h
4. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan. 2023 Mar 20
5. Przegl Lek 2004;61(4):389-91.