



# Prevention of Neonatal Abstinence Syndrome in the Setting of Intrauterine Baclofen Exposure

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## Case Study

- 43 year-old female with chronic baclofen use for spasticity secondary to a spinal cord injury.
  - Gave birth to a healthy full-term infant male via spontaneous vaginal delivery.
  - Throughout pregnancy the mother had received oral baclofen 80 mg daily.

## Background

- Baclofen
  - Gamma-aminobutyric acid (GABA) agonist used as a muscle relaxant in the treatment of spasticity.
  - Occasionally necessary to continue in pregnancy for neurological conditions.
- Neonatal Abstinence Syndrome (NAS)
  - Constellation of symptoms in newborns exposed to addictive substances in utero.
  - Symptoms include irritability, high-pitched crying, excessive sucking, and seizures.
  - One case of intrauterine baclofen exposure demonstrated symptoms of NAS (high pitched crying, tremor, disordered sleep, mottling) beginning on the 3<sup>rd</sup> day of life.
  - Another case demonstrated benzodiazepine-refractory seizures beginning on the 7<sup>th</sup> day of life.

## Hypothesis

- The administration of a baclofen taper shortly after birth will help prevent Neonatal Abstinence Syndrome from intrauterine baclofen exposure.

## Methods

- A multidisciplinary team consisting of toxicologists and health care providers met to formulate a baclofen taper regimen based on review of the limited case reports of intrauterine baclofen exposure.
  - Initial dose of 0.1 mg/kg/day for four days followed by a decrease of 0.01 mg/kg/day until discontinuation of baclofen on the 13<sup>th</sup> day of life.
- Daily assessment for Neonatal Abstinence Syndrome was performed using the modified Finnegan NAS scoring system.
  - Assesses for 21 symptoms frequently observed with Neonatal Abstinence Syndrome.
  - Assessment was performed every 4 hours.
  - Scoring system ranges from 0 to 42.

## Results

- 82 modified Finnegan NAS scores obtained in the first 16 days of life.
- Scores ranged from 0 to 9 with a mean score of  $2.0 \pm 2.4$ .
- Max score of 9 was observed on the 12<sup>th</sup> and 13<sup>th</sup> day of life.
- At no point were there three consecutive NAS scores  $\geq 8$ .
- Last dose of baclofen taper regimen received the morning of the 14<sup>th</sup> day of life.
- Infant was discharged from the hospital 3 days after the baclofen taper regimen had finished.

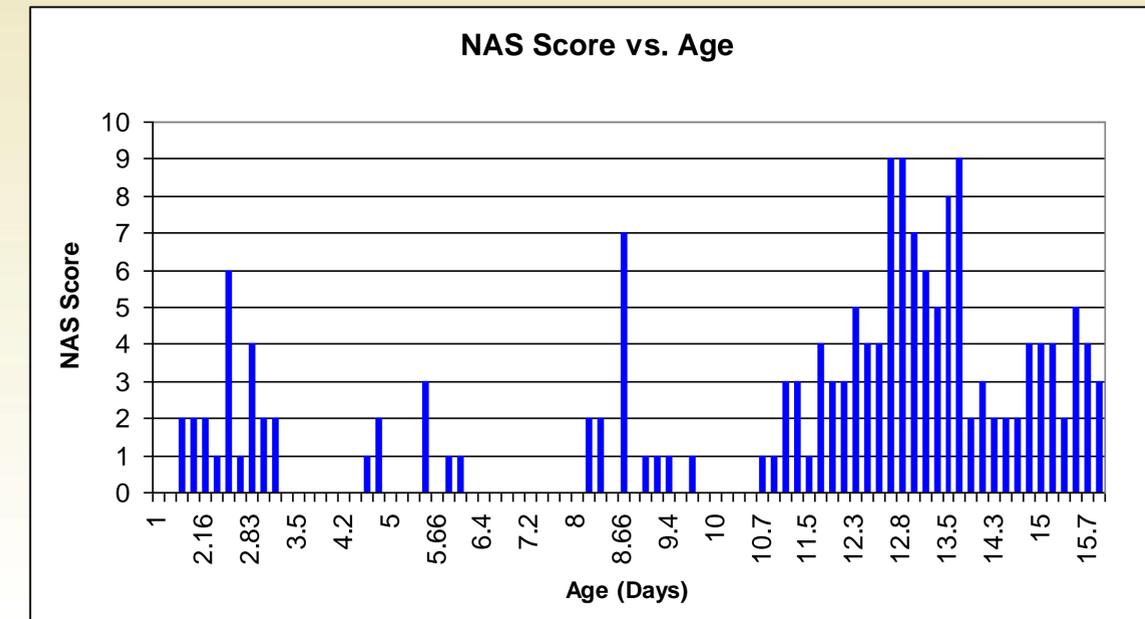


Figure 2: Graphical Representation of NAS Scores vs. Age in Days

## Discussion

- This case study demonstrates the absence of NAS in an infant who received a baclofen taper after intrauterine baclofen exposure from a mother taking oral baclofen 80 mg/day.
- Lack of three consecutive NAS scores  $\geq 8$  indicated no need for further pharmacological intervention.
- Limitations include the fact that the infant also received baclofen via breast milk, complicating the ability to determine exactly how much baclofen the infant received each day.

## Conclusion

- The administration of a baclofen taper can prevent NAS in the setting of intrauterine baclofen exposure.

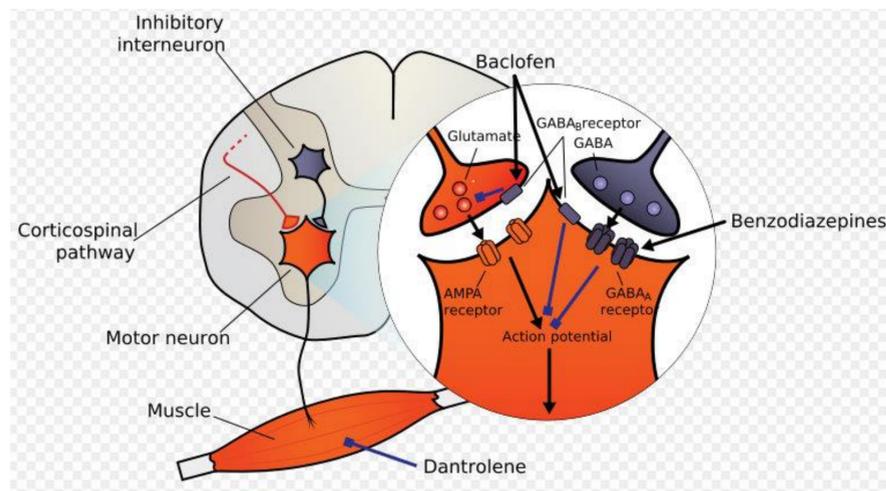


Figure 1: Mechanism of Action of Baclofen

