

NIC Pharmacotherapy-Anticoagulants & Drugs for Use During Therapeutic Hypothermia for HIE

Objectives

- Recognize the developmental characteristics that create a unique risk for neonatal thrombotic complications and identify the most common causes and locations for thrombus formation in neonates
- Describe neonatal anticoagulation choices based on pharmacokinetics (PK), pharmacodynamics (PD), and the impact of co-morbidities in this special population
- Discuss the drugs most commonly utilized to support sedation and provide treatment of seizures during therapeutic hypothermia for hypoxic-ischemic encephalopathy (HIE)
- Explain the basis for concerns and considerations regarding the use of prolonged anticonvulsant therapy in neonates

Content Outline

1. Anticoagulation in preterm and term neonates
 - 1.1 Reasons for anticoagulation differences in neonates
 - 1.2 Natural history of neonatal thrombosis
 - 1.3 Common sites and characteristics of thrombotic complications
 - 1.4 Standard anticoagulant agents for neonates based on PK and PD properties
 - 1.4.1 Unfractionated heparin (UFH)
 - 1.4.2 Low molecular weight heparin (LMWH)
 - 1.5 Other limited use anticoagulants
 - 1.6 Neonatal thrombosis treatment guidelines for specific co-morbidities
2. Sedation and Seizure Treatment During Neonatal Therapeutic Hypothermia
 - 2.1 Overview of hypoxic-ischemic encephalopathy (HIE)
 - 2.2 Indications and approaches to sedation during therapeutic hypothermia
 - 2.3 Seizures following hypoxic-ischemic encephalopathy (HIE)
 - 2.4 Algorithm for standardization of therapy for neonatal seizures
 - 2.4.1 Phenobarbital, phenytoin, and midazolam
 - 2.4.2 Levetiracetam
 - 2.5 Considerations for duration of anticonvulsant therapy
 - 2.6 Summary of current HIE and seizure recommendations

Reading Material Resources

Module WB2353: Pharmacotherapy-Anticoagulants & Drugs for Use During Therapeutic Hypothermia for HIE is based on the resources listed below. A copy of each resource is included with the module.

Anticoagulation in preterm and term neonates: Why are they special?
Bhat R and Monagle P, *Thrombosis Research*, 187 (2020), 113-121

Provision of Sedation and Treatment of Seizures During Neonatal Therapeutic Hypothermia, McPherson C and O'Mara K, *Neonatal Network*, 39 (4), (2020), 227-235