Mother & Baby Substance Exposure Toolkit Best Practices

Best Practice No. 22

A part of the California Medication Assisted Treatment Expansion Project

This version was published on 2020-04-07

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Consider clonidine instead of phenobarbital as a potential second line/adjunctive therapy for NAS

Best Practice No. 22

Nursery/NICU and Treatment

Overview

Clonidine may be considered as a second line/adjunctive therapy for NAS. Studies are ongoing on the use of clonidine as a first-line agent.

Why we are recommending this best practice

Phenobarbital is a nonselective central nervous system depressant that is sometimes used in combination therapy for NAS. It has been recommended mainly for non-opioid withdrawal in polysubstance exposure as an adjunct therapy. Its role is limited in opioid withdrawal given several disadvantages, such as lack of relief of gastrointestinal symptoms, impaired bonding and feeding in infants due to central nervous system depression, and potentially more long-term neurodevelopmental effects. Clonidine is an alpha-2 adrenergic receptor agonist that inhibits central nervous system sympathetic outflow and reduces norepinephrine levels. It reduces the autonomic symptoms (mediated in the locus coeruleus) of NAS. Clonidine has at least one high quality RCT supporting its use as an adjunctive agent to reduce length of pharmacotherapy treatment for NAS.

Strategies for Implementation

- Develop unit-specific guidelines for initiation of clonidine as adjunct therapy if NAS is not adequately controlled with first-line therapy alone.

- Establish guidelines for escalation of clonidine.

- When weaning clonidine, consider a two-step reduction of the clonidine dose over 48 hours or weaning of opioids before stopping clonidine. This may reduce rebound NAS withdrawal symptoms.

- Clonidine has the potential to cause heart rate or blood pressure changes and monitoring is recommended. Monitor heart rate and blood pressure more closely during the first two days of clonidine therapy and for 48 hours after discontinuation.

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Dr. Alexandra Iacob is a Neonatal-Perinatal Fellow at University of California, Irvine (UCI) based out of UCI Medical Center and Miller Children's and Women's Hospital Long Beach. While in fellowship, she is also pursuing a Master in Public Health at Johns Hopkins University. She is passionate about improving neonatal outcomes across all socioeconomic classes via both quality improvement projects and policy efforts. She is particularly interested in neonatal abstinence syndrome and the impact it has on the mother, the baby, and the family as a whole.

Angela Huang

MPH, RNC-NIC

Angela Huang is a clinical nurse in the Neonatal Intensive Care Unit at Santa Clara Valley Medical Center, where she is also a nurse coordinator managing and leading quality improvement and research projects. She is actively involved in hospital-wide and county-wide opioid use reduction initiatives, specifically outcome improvement for mother/infant dyads with a history of substance use and exposure. Angela is also the co-chair for the CPQCC Maternal Substance Exposures Workgroup which is assessing the statewide scope of NAS and NAS management practices.

Kathryn Ponder

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Dr. Ponder is a neonatologist with East Bay Newborn Specialists, working in the neonatal intensive care units at the UCSF Benioff Children's Oakland, John Muir Walnut Creek, and Alta Bates hospitals. She is also the director of the John Muir High Risk Infant Follow-Up clinic. She has revised her practice's guidelines for the care of infants with Neonatal Abstinence Syndrome and is leading a quality improvement initiative at John Muir to implement these changes. She has previously conducted research and published in the fields of developmental/placental biology and maternal health. She continues to be interested in the developmental origins of disease and optimizing neurodevelopmental outcomes for infants.

Lisa Chyi

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Dr. Lisa Chyi is a practicing neonatologist at Kaiser Walnut Creek. She is co-chair for the CPQCC Maternal Substance Exposures Workgroup which is assessing the statewide scope of NAS and NAS management practices. She also helped develop the NAS management guideline and oversees NAS patient care for the Kaiser Northern California region.

Pamela Aron-Johnson

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Pamela has been at UCI Medical Center in Irvine, California for 35 years in several roles including staff nurse in the NICU for 17 years, Outpatient Nurse Manager for Primary and Specialty Services, and currently the Quality and Patient Safety Advisor for the NICU and OB departments. She is also a member of the Data Committee Advisory Group for CPQCC, and is the data nurse coordinator at UCI for both CPQCC and CMQCC.

Priya Jegatheesan

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Dr. Priya Jegatheesan is the Chief of Newborn Medicine and the Regional NICU Director for Santa Clara Valley Medical Center in San Jose, California, an institution committed to the medically underserved. Her main area of interest is outcomes and data-driven quality improvement. She established a comprehensive computerized database system in the SCVMC NICU that enables prospective data collection for quality improvement and research. She also actively participates in CPQCC's Perinatal Quality Improvement Panel and chaired the QI infrastructure sub-committee for 2 years. She became a member of the Society for Pediatric Research in 2014 and has actively participated in clinical research. She is currently the study site Principal Investigator for a NIH funded multi-center study evaluating ondansetron (5HT3 antagonist) for prevention of neonatal abstinence syndrome in newborns born to mothers who had chronic opioid use during pregnancy. She is a passionate champion for optimizing care of newborns exposed to substances during pregnancy to prevent neonatal abstinence syndrome by promoting mother-infant couplet care.