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PEDS CASES CPS PODCAST SCRIPT – BREASTFEEDING AND HUMAN MILK IN THE NICU: FROM BIRTH TO DISCHARGE

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Introduction:

Hello everyone, and welcome to this PedsCases podcast reviewing the CPS statement “Breastfeeding and human milk in the NICU: From birth to discharge”. My name is Insiya Fathima Moosavi, and I am a second-year medical student at McMaster University. This podcast was made in collaboration with Dr. Nikki Mitchell, a pediatric resident from Alberta, and Dr. Rhea D’Costa, a Developmental Paediatrician from Toronto.

This podcast will be reviewing the importance of breastfeeding and human milk for infants, in particular those in the neonatal intensive care unit, or NICU, as well as best practices for facilitating optimal feeding, and supporting mothers.

Learning Objectives

By the end of this podcast, listeners should be able to:

1. Recognize the importance of breastfeeding and human milk for infants
2. Describe why breastfeeding practices should be prioritized in the NICU
3. Implement optimal feeding of infants based on their stability and maturity
4. Support mothers to establish and maintain milk production when their infants are unable to feed at the breast

Clinical Case

To help guide our learning objectives, let’s illustrate this scenario with a clinical case. You are a pediatric resident on your NICU rotation. You are asked by the attending physician to see Baby Zainab and her mother, Mrs. Fatimah.

Baby Zainab was born prematurely at 29 weeks gestation and was immediately admitted to the NICU due to respiratory distress and the need for supportive care. She requires nasal continuous positive airway pressure for respiratory support and is initially placed on parenteral nutrition until she is stable enough to begin enteral feeding.

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The mother, Mrs. Fatimah, expresses a strong desire to breastfeed but is concerned about her ability to do so given Baby Zainab's condition and their separation.

Let's discuss how we can best support our patient and her mother.

Review Topic

Breastfeeding and human milk are the biologically normal and optimal methods of feeding infants, and they're unmatched in their ability to support a newborn's health. Today, we'll focus on why human milk is particularly essential for infants in the NICU, especially for those born prematurely or with medical complications.

Let's begin by discussing some of the key advantages of breastfeeding for NICU babies.

1: The Benefits of Breastfeeding and Human Milk in the NICU

Human milk is a powerful substance. It supports optimal growth and development, enhances immune function, and promotes neurodevelopment, particularly in preterm infants who are more vulnerable to complications like bowel issues and sepsis.

One of the major concerns for premature infants is neurodevelopment. Preterm birth is linked to a higher risk of adverse neurodevelopmental outcomes, and adequate growth in these infants plays a crucial role in mitigating this risk and supporting overall health. Human milk is key here, as it provides the essential nutrients tailored to their unique requirements for these vulnerable babies to thrive.

But let's face it—not every mother of a preterm or ill infant can breastfeed right from the start. When breastfeeding isn't possible, the first alternative is to provide expressed breast milk from the mother. If that's unavailable, the next best option is pasteurized donor human milk from a regulated milk bank. And finally, if donor milk isn't an option, commercial milk formula may be used.

For very low birth weight infants, human milk alone is not sufficient for optimal growth. Cow's milk-based multi-nutrient fortifiers are used to fortify human milk to meet these infants' nutrient needs, —but should be weaned off as soon as possible to avoid interfering with breastfeeding.

2: Initiating and Supporting Feeding in the NICU

Now, let's talk about timing. For all infants able to breastfeed, the goal is to begin as soon as possible, ideally within the first hour after birth, or as soon as they are clinically stable. The way newborns initially approach breastfeeding varies; some will merely sniff, while others might start licking, tasting, or even suckling. Premature infants as early as 28 weeks gestational age may demonstrate these behaviours.

For less mature or ill infants, breastfeeding isn't always possible right away. These infants often begin with enteral feeding via orogastric or nasogastric tube, and then transition to breastfeeding or other oral feeding methods. Very low birth weight infants frequently start on parenteral nutrition to ensure they receive optimal nutrition in those critical early days.

For those who are stable enough, oral feeding should start at the breast whenever possible. If a mother's milk flow is especially strong, it might help to express some milk before feeding to avoid overwhelming the infant. Premature infants tend to do better at the breast compared to bottle feeding, with improved physiological stability. Breastfeeding on nasal CPAP is possible and is another way early breastfeeding can be implemented with proper training and feeding protocols for NICU personnel to ensure safety.

3: Guidelines and Support for Feeding in the NICU

Feeding guidelines are essential to achieving optimal growth and minimizing complications in premature infants. These guidelines should encourage exclusive breastfeeding by discharge or at least ensure the baby receives as much human milk as possible.

While feed protocols vary across NICUs, one key strategy is transitioning from enteral feeding to breastfeeding as quickly as the infant's health allows. Cue-based feeding, rather than scheduled feeding, is another important practice that should be supported, allowing infants to feed based on their hunger cues. With early support, most premature infants typically achieve exclusive breastfeeding by 34 to 39 weeks postmenstrual age, but some can do so as early as 32 weeks.

When oral feeding isn't an option, trophic feedings — small amounts of colostrum or human milk via enteral tube can stimulate the development of their gastrointestinal system and improve immune function. Colostrum or fresh human milk can also be applied to the oral mucosa to support the infant's immune function and microbiota, often called oral immunotherapy. These approaches are especially beneficial for infants on IV feeds.

4: Creating a Supportive NICU Environment

Creating a supportive, family centered NICU environment is crucial for both the infant's and the mother's well-being. We know that providing human milk is one of the safest and most effective therapies for NICU babies. Therefore, it's vital to empower mothers to care for their infants, support them in expressing milk, and facilitate skin-to-skin contact whenever possible.

Skin-to-skin care, often called kangaroo care, has been shown to improve breastfeeding outcomes and even increase milk production. This early bonding is not only beneficial for breastfeeding but also helps mothers feel more confident and connected with their babies.

It's important to have a NICU team that's trained in lactation support and breastfeeding counseling. Lactation consultants, specialized nurses, and accessible resources can make a huge difference in helping mothers begin early and regular expression of breast milk, which is critical to establish and maintain their milk supply.

5: Overcoming Challenges and Contraindications

Of course, there are challenges and rare contraindications to breastfeeding that healthcare professionals should be aware of. In Canada, for example, mothers with HIV or human T-cell leukemia-lymphoma virus are advised to use commercial formula instead of their own milk. Temporary interruptions in breastfeeding may also be necessary for mothers on certain medications, such as chemotherapy drugs.

With the right support, most mothers can successfully breastfeed their NICU babies, even if they face initial difficulties. Counseling, access to hospital-grade pumps, and strategies like domperidone for increasing milk supply can help overcome these challenges.

Wrap-Up of Clinical Case

Now, let's go back to the clinical case. You explain to Mrs. Fatimah that breastfeeding is the optimal feeding method for all infants, including preterm infants like Baby Zainab. You share with her that the goal is to provide Baby Zainab with human milk as soon as she is ready, even if it begins with expressed breast milk.

Initially, Baby Zainab is not able to breastfeed due to her respiratory needs and clinical instability. However, as soon as she stabilizes, she is transitioned to enteral feeds using expressed milk from Mrs. Fatimah and was encouraged to feed directly at the breast when she was developmentally ready.

To support Mrs. Fatimah in maintaining her milk production, she was encouraged to express milk frequently, ideally 7-8 times per day, using a hospital-grade double pump. Early skin-to-skin contact with her baby also helped her increase her milk supply. Mrs. Fatimah and her husband were welcomed as part of Baby Zainab's care team. The NICU staff facilitated daily skin-to-skin care, allowed for unrestricted parental involvement, and provided a private, comfortable space for expressing milk.

As Baby Zainab approached discharge, the team worked closely with Mrs. Fatimah to ensure that she was comfortable with breastfeeding and that her infant was receiving adequate nutrition. Ongoing breastfeeding support was arranged post-discharge, and Mrs. Fatimah had access to lactation consultants and community resources to ensure a smooth transition home.

Summary and Recommendations

As you have learned through this podcast and case example, breastfeeding and human milk are vital components of care in the NICU, from birth to discharge. Supporting mothers and babies through this process requires a team approach, with evidence-based guidelines and a nurturing environment that promotes bonding and milk production.

As such, the CPS has outlined the following recommendations to be implemented:

1. Adopt an evidence-based infant feeding policy that is implemented by a skilled multidisciplinary team, including lactation consultants and nursing staff with expertise in breastfeeding support.
2. Inform mothers at risk of having an infant admitted to the NICU about in-hospital supports and services to help establish early breastfeeding and optimize breast milk production.
3. Provide a family-centered environment for breastfeeding and the provision of human milk that ensures parents' unrestricted presence in the NICU, enables mothers and their infants to remain together, and facilitates their full participation in infant feeding and care.
4. Support skin-to-skin (or "kangaroo") care: practiced early, for as long and as often as parents are able and willing to, throughout the NICU stay.
5. Initiate breastfeeding within 1 h post-birth or as soon as infants and mothers are clinically stable, regardless of gestational age, postmenstrual age, or birth weight, and continue to support unrestricted access to the breast based on infant stability.
6. Assist mothers with early milk expression when they are unable to breastfeed or are separated from their infants, or when their infants are unable to feed at the breast or cannot feed efficiently.
7. Aim for all infants admitted to the NICU to achieve exclusive breastfeeding. When a mother's own milk is unavailable, limited, or contraindicated, provide pasteurized donor human milk from a regulated milk bank to supplement or replace it. Avoid use of commercial milk formulas unless there are medical indications.
8. As premature infants mature, support transitions from enteral feeding to feeding at the breast and from scheduled to 'cue-based' feeds, without unjustified restrictions on frequency, intervals between feeds, or duration of feeds at the breast, making sure to coordinate feeds with the mother as well.

9. Provide a physical environment that facilitates rooming-in or accommodates parents so they can rest or sleep close to their infants.
10. With parents, develop an individualized feeding plan before discharge to support the transition to home, including referrals to breastfeeding support services when needed.

Thank you for listening to this podcast episode reviewing the CPS statement “Breastfeeding and human milk in the NICU: From birth to discharge”. We hope that this episode was helpful for your learning, and you now have a better understanding of breastfeeding practices in NICU settings.

Please stay tuned for more great podcast episodes.