

NICU (NEONATAL INTENSIVE CARE UNIT) - Questions & Answers

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WHAT IS A PREMATURE BABY?

The term premature baby refers to the birth of a baby before the 37th week of pregnancy, regardless of weight. The problems typical to premature babies stem from the immaturity of the various body systems. They are more common the earlier the birth is.

The earlier the baby is born, the longer the hospitalization will be, and the greater the struggle with medical and emotional problems will be both for the parents and the hospital staff.

WHAT HAPPENS TO A BABY WHO IS BORN PREMATURELY?

In the case of a premature birth, a reinforced staff that includes an expert pediatrician and nurse are present in the delivery /operating room to immediately treat any problems. Some preemies, especially the smaller ones, need immediate resuscitation and breathing support.

After the initial treatment, the preemie is transferred to the Neonatal Intensive Care Unit. The unit is staffed by an expert team of caring medical professionals and equipped with the most advanced equipment available.

HOW DOES THE PREMATURE BABY LOOK?

What will be most noticeable when you see your baby for the first time is how tiny he is. He will sometimes appear even smaller than he actually is in the tangle of pipes and instruments that surround him.

The baby's skin is red and delicate, almost translucent, and his blood vessels are visible. His ears are thin and are sometimes folded and crumpled, but, all this will change as he matures.

His other limbs are intact although at different maturity levels. He hears and sees, but his vision is limited to nearby objects and to contrasting colors such as black and white.

WHAT ARE THE SPECIAL PROBLEMS OF PREMATURE BABIES?

- Respiratory system: The earlier the birth, the more common respiratory problems are.

The immaturity of the lungs stems from, among other things the lack of a certain agent in the lungs called surfactant, which helps prevent the lungs from collapsing. Breathing difficulties can vary. In mild cases the infant only needs extra oxygen.

In other cases there is a need for artificial respiration using breathing machines. Sometimes surfactant replacement therapy is given. Another phenomenon common in preterm infants is repeated breathing pauses, which can be treated with appropriate medications and other methods.

- **Body heat:** Premature babies tend to lose heat and fluids fast; the open or closed incubator is designed, among other things, to maintain a constant body temperature. To prevent fluid loss, the baby receives an intravenous infusion through which he gets the nutrients he needs.

- **Heart and circulation:** The circulation in a premature baby is different from the fetal circulation, when the baby was still in the womb. The main difference is the direction of the blood flow and the "shortcuts" the blood takes through the blood vessels, which normally close after birth. One of those shortcuts (shunt) is a blood vessel called the ductus arteriosus. In preterm infants, this blood vessel remains open, and is likely to interfere with normal heart activity. The ductus arteriosus can be closed with drugs, and sometimes by surgery, if necessary.

The preemie's heart rate is approximately 120-160 beats per minute and is recorded and monitored by a monitor attached to the baby immediately after birth.

A pause or slowdown in the baby's breathing (called apnea) is common in premature babies and can be treated with appropriate medications.

- **Gastrointestinal tract:** The digestive tract of a preemie is complete but immature. Most preterm infants do not receive food immediately after birth, but only after their condition has stabilized. A preemie's stomach is small and can absorb only a small amount of food, so he receives very small, frequent meals; mother's milk is recommended.

- The swallowing mechanism in babies born before the 34th week isn't mature and providing food orally may result in food going into the lungs. Therefore the premature baby receives food through a special feeding (nasogastric) tube that is inserted through the mouth or nostril into the stomach. The tube is not painful and doesn't cause discomfort. It is important while feeding the infant to give him a pacifier in order to strengthen his sucking reflex. Sick preemies generally do not receive food through a nasogastric tube but are rather fed intravenously.

- **Jaundice:** Jaundice is very common in preterm infants during their first days. It stems from the breakdown of fetal red blood cells and liver immaturity. It is treated with a special light treatment called phototherapy. During treatment, the preemie's eyes are covered in order to prevent exposure to the glare of the strong light.

- **Transfusions:** Preterm infants initially need intravenous fluid transfusions (IV) and sometimes require repeated transfusions later on. The IV enables the baby to receive the fluids, nutrients, vitamins, and salts he needs. Most of the medications are also given through the IV. When needed, blood or its products or also given through the IV. The location of the IV, which can be in the hands, feet, head, and even in the navel blood vessels. is frequently changed.

- **Infections:** Premature babies have a tendency to get infections. The reasons for this are

their underdeveloped immune system and thin skin as well as the transfusions and treatments that they must undergo. This situation can endanger the life of the premature baby.

Any change in the preemie's condition that arouses suspicion of infection requires investigation (blood cultures), and antibiotic treatment. One way to reduce the risk of infection is taking precautions in accordance with NICU procedures: first and foremost, thoroughly washing hands before any contact with the baby.

PHYSIOTHERAPY IN THE NICU

What does physical therapy have to do with premature babies?

Exercise at such an early age?

Who receives physical therapy, the babies or the parents?

These and similar questions arise when people hear about physical therapy in the NICU.

The role of the physiotherapist in the NICU

Guidance for Parents:

1. Proper conduct in the incubator environment
2. Correct "touch time" and its importance – knowing how to touch the baby properly and when and what to look at when touching my baby
3. Positioning my baby properly in the incubator; understanding the reason for this and how to achieve it
4. Active internal and external stimulation of the mouth; understanding the sucking process, the proper time for the stimulus, carrying out proper stimulation by the parent
5. Appropriate developmental guidance - from birth until the baby's release from the NICU (proper grabbing, lifting correctly, rocking, etc.)
6. Teaching appropriate exercises in cases of long hospitalization or for specific problems.
7. Training, after discharge from the NICU, to:
 - Properly handle the baby
 - Give appropriate initial stimuli – auditory, visual, touch, etc. ..
 - Place the baby on his stomach when he is awake, something that serves as a "gym" for him.

For the baby:

1. Initial assessment.
2. Positioning the baby properly – on his stomach, back and side.
3. Touching the baby properly
4. Internal stimulus of the baby's mouth from the feeding tube stage until the sucking stage (bottle / breast feeding).
5. Specially designed exercises and appropriate developmental demand for various problems
6. Respiratory care.
7. If necessary - video of the infant as part of a complementary diagnosis according to Prof. Frechtal's method (GM's).

Clinic for premature babies

After their discharge, preterm infants are invited to the clinic where they will be seen by a nurse, a neonatologist, a social worker and a physiotherapist. The babies will undergo testing and the parents will receive appropriate developmental training. Experts in neurology, gastroenterology, pediatrics and osteopathic assessment are also available at the clinic.

THE GIRAFFE

In the NICU we try to provide our babies with the best treatment, comfort and closeness to their parents.

A premature baby, who was born many weeks ahead of schedule, must quickly adapt to an environment that is radically different from the one he was accustomed to, one in which he was supposed to complete his development.

The neonatal unit is a new, complex environment for him. He will need to lie in an incubator for several months, becoming accustomed to the vast amount of equipment that surrounds him, to noises, voices, lights, touch, and more. None of the various treatments he receives were part of his environment in the womb.

Laniado's NICU features an innovative bassinet, called the "Giraffe" that provides all the comfort of a hotel: air conditioning, an adjustable bed, four directions of air, and a comfortable and quiet atmosphere. The Giraffe is a combination system of an open and a closed incubator. It opens at the touch of a button, lifts up and becomes an open incubator.

The open incubator

Advantages: Heats up fast, provides easy access to the baby so parents can hug him

Disadvantages: Dry air and relatively low humidity, exposure to surrounding light and noise

Preterm infants are at risk of developing hypothermia immediately after birth. Causes of hypothermia are the high ratio between the surface area of the face and their volume, the

absence of brown fat in their skin and the lack of glycogen. Hypothermia is accompanied by complications such as hypoglycemia, acidosis, and apnea. Therefore it is very important to warm the premature baby immediately after birth.

The Giraffe slowly lowers, and converts to a closed incubator.

The closed incubator

Warm air disperses gently in the incubator at a low speed. The moisture that surrounds the baby helps to reduce heat loss through evaporation. The walls of the incubator can be opened on all sides, and a push-button activates a masking curtain, so that the air in the room doesn't mix with the warm air in the incubator, (as when you enter an air-conditioned room and feel the air-conditioning the moment you enter).

Advantages: control of the environment, temperature, humidity and contact

Disadvantages: immediate treatment is more difficult.

The infant lies on a special silicon mattress which prevents bed sores and can be adjusted to different heights. The mattress turns in all directions and greatly helps during treatment. There is no need to take the baby out to be weighed as there is a scale inside.

The baby's environment

The baby is coping with his new, complicated surroundings with all his body systems (including his central nervous system), which have not yet fully matured. Premature babies are sensitive to their external environment including stimuli such as pain, voices, noises, and touch.

There are many things in the NICU (loud noises, pain, change in position, and ongoing treatments) that may cause discomfort to the preterm baby, and upset his balance, making peaceful, continuous rest difficult. Although these are for the most part unavoidable, they can be modified and reduced and support can be provided for the baby when he is exposed to them.

Noise

The premature infant is exposed to many noises on a daily basis in the NICU. The monitor, for example, makes noise of 55-65 dB, the alarm on the monitor - 78 dB; closing the incubator - 75 dB; telephones - 65 dB. A noise level of 45 decibel is recommended. The Giraffe prevents environmental noises from reaching the preemie.

Light

Strong light – including the room lighting, phototherapy (treatment for physiological jaundice), and a special lamp used to treat the preterm baby - may interfere with proper development of the baby's visual system. The incubators in the NICU are covered so that the baby will be less exposed to strong light.

A new phototherapy machine enables the infant to lie comfortably on a special pillow while receiving treatment, without the need for his eyes to be covered.

The importance of touch

Touch is an integral part of the premature baby's life. Before each treatment and physical contact, a pain estimate is made for the preterm baby in order to reduce the pain.

The baby is put down using a "nesting" movement, which allows him to maintain the optimal position and gives him a sense of calm and confidence. The preemie is also given a special pillow that looks like a long hand, which embraces him in the incubator and gives him the feeling that he is not alone.

We teach the parents the importance of touching their baby, and how to place their entire hand on their child's body in a way that relaxes him.

One innovative and much studied intervention is to hold the baby using the "kangaroo care" method. This method allows the baby to have skin-to-skin contact with a parent which helps to regulate the baby's temperature and facilitates bonding at this crucial time. The parent is relaxed, the baby is calm (this can be seen on the monitor), and the sense of security and closeness the baby enjoyed in the womb is partially restored. The Giraffe makes it easier to perform kangaroo care.

The Giraffe is also designed for babies with particularly complex problems. A parent cannot remove the infant but can bend over him and embrace him (when the Giraffe is functioning as an open incubator with all the sides down).

While the Giraffe has raised the standard of care for the preterm baby, equally important is the skilled staff who give professional and innovative treatment and provides support for parents in the long journey until the baby comes home.

DO PREMATURE INFANTS FEEL PAIN?

They feel pain, but less intensely.

After birth, the infant must undergo numerous tests and is exposed to hostile environmental conditions (such as noise and bright lights) as part of their routine care in the NICU. An adult is able to communicate his experience of pain and its intensity, while an infant's poor communication resources make it difficult to assess and measure his pain.

Results of recent studies show that the most effective treatment for pain is behavioral therapy. Behavioral therapy includes: reducing the intensity of light, reducing noise, providing sugar water with a pacifier, breastfeeding or providing breast milk, diapering, concentrating all the examinations together, and having the parents present during the examinations if possible.

In the Neonatal Department, we perform a daily assessment of pain, and before every invasive procedure, a pain estimate is carried out based on vital and behavioral signs. Depending on the results, we provide anti-pain treatment.

HOW DO PARENTS OF PREMATURE BABIES FEEL?

Birth is generally an exciting and joyous event for the parents. It is a new beginning full of

expectations, dreams and hopes. The birth of a premature baby, in contrast, is the shattering of a dream, a traumatic, unexpected event. Instead of feeling happy, the parents are worried about whether their baby will live and are concerned about his future as a healthy, normal child. It is a crisis that touches every aspect of their lives and affects the entire family

The birth is accompanied by strong feelings of failure, disappointment, guilt, self-recrimination, worry and anxiety. The parents focus exclusively on the present and feel great uncertainty about the baby's condition and tremendous frustration over their inability to influence or change anything.

However, this difficult time can also be beneficial to the family unit, and strengthen the relationship between the couple and with the other children.

Some of the most prominent emotions most parents feel, to varying degrees, include:

- Anxiety – over the baby's situation, the dangers, and his chances of remaining alive.
 - Anger and frustration - why did this happen specifically to us?
 - Guilt - especially in the mother, who feels responsible for the early birth.
 - Confusion - inability to concentrate and to perform daily activities.
 - Annoyance – at the staff, the external environment, the spouse and the children;
- depression and crying.
- Difficulty in establishing the initial contact

LEARNING TO COPE

Professional guidance and support are essential for the parents during this trying period. The NICU has built a work plan that addresses the range of emotions that parents of premature babies experience.

In addition to the nursing staff, which is an important source of support for the parents, a social worker is at the service of the parents. Her role is to support them emotionally while helping them adapt to the situation. She accompanies them, both on an individual level, through personal discussions, and at the group level through meetings (parents' hour), in which the parents receive information and coping tools and also help and support each other.

Generally, coping is characterized by 4 stages:

1. Shock and difficulty in digesting the reality.

2. Denial and repression of emotions, both positive and negative. Difficulty relating to the baby, touching and caring for him, or general feelings of emptiness, detachment, and distance.

3. Anger, guilt, depression and grief - anger about the birth, at the medical staff, the spouse or extended family; feelings of guilt that something they did was responsible for the premature birth; depression and grief over the loss of the dream or the loss of the baby they were expecting.

4. Acceptance, which is characterized by a sense of adaptation, of accepting reality, establishing a connection with the baby and feelings of strength and the ability to cope.

The social worker

At meetings with the parents the social worker listens attentively and non-judgmentally to what they have to say, and gives them room to fully express their emotions. She gives legitimacy to these feelings and stresses that they are natural and normal, in response to the crisis they have gone through.

During these discussions, the mothers' feelings of guilt and anger often come up, as they feel that their bodies betrayed them or that their actions caused the early birth. In such cases the social worker emphasizes the natural human need to seek "guilty" parties in order to obtain a feeling of control over a situation that is not under our control. She tries, together with the parents, to find a positive meaning to the crisis that will eventually become a source of growth and development.

In addition, the social worker encourages the parents to touch and care for the baby in order to create a connection between them while helping to allay the feelings of fear, panic and guilt that arise. She also encourages them to obtain complete medical information about the baby's condition in order to get a sense of certainty, involvement and control.

The meetings also emphasize the importance of family and spousal support and the influence the birth of a premature baby has on the family unit and the relationship between the couple. The social worker relates to each partner separately and encourages each one to mirroring back the feelings of the other, in order to create better understanding, empathy and mutual support.

Parents who have other children at home are generally concerned about how the birth of the premature baby will influence them. They have questions about how to tell the children, how to include them and how to create a connection with the baby. Drawing pictures for the baby, writing letters to him, bringing pictures of him home or glimpsing at him through the window of the NICU can help give the siblings a feeling of closeness to the baby.

Towards the end of the hospitalization and discharge, the social worker meets with the parents and talks to them about what to expect at home, about concerns and fears that that come up prior to the discharge, about the importance of the support the mother will need from her family

and what will be needed at home in terms of baby care and equipment.

In order to maintain the continuum of care, monitoring and support after discharge, parents receive information about their rights and about various bodies that provide support . These include Tipat Halav well-baby clinics, social services department, health funds, and nonprofit or aid organizations, as needed. In some cases the social worker makes contact with these bodies before discharge, to facilitate the parents' adjustment at home.

WHAT CAN I DO FOR MY BABY?

Daily contact between the baby and his parents contributes significantly to the infant's normal development. Inside his mother's womb, the fetus felt safe. In the incubator he must adjust to a strange and frightening world. Parents, especially, the mother, are familiar to the baby and therefore daily contact will strengthen his self-confidence. Physical contact with the parents has a positive effect on his development. It is important to touch him, caress him and massage him lightly, as much as his condition allows.

You can easily assess the baby's reactions. If the stimulus is too intense and he shows signs of stress, stop and try again gradually on your next visit. You can consult with the nursing staff and find out what kind of contact the preemie likes. The more developed the preemie is, the more intense the connection will be. Ask the nurses if there are times when he is more alert or on which mornings (starting at a weight of 1.5 kg), you can help dress, bathe and feed him. In general, frequent updates from the doctors and nurses on your baby's condition, along with progress in his treatment and condition, will encourage you and give hope for his recovery.

CAN I BREASTFEED?

Certainly, but it depends on the age of the preemie and his health. Breastfeeding and providing breast milk are essential for all newborns, but particularly for preterm babies. Breast milk contains all the nutrients a baby needs, as well as antibodies that help the baby, especially during the first months when his immune system is not strong enough. Breast milk is absorbed better in the preemie's immature and small intestines and reduces the risk of infectious intestinal diseases.

A premature baby, especially one born very early, has an immature sucking reflex and difficulty coordinating swallowing, breastfeeding and breathing. A very small preemie cannot start breastfeeding but needs to get his mother's milk through a feeding tube straight into his stomach.

Nurses who are also lactation consultants at the NICU will provide you with guidance about breastfeeding a larger preemie.

EVERYONE GIVES ADVICE, WHOM SHOULD I BELIEVE?

Pediatricians and Tipat Halav nurses monitor your baby and will tell you how often they want to track his growth and development. Relatives, neighbors and friends often give advice based on their own experience. This can be confusing and can harm your baby. With proper and wise guidance, raising your baby will be a wonderful and satisfying experience. .

WHEN DO WE GO HOME?

Premature babies are discharged when they meet the following criteria:

- Corrected age = 36 weeks or weight of around 2000 g
(Corrected age = gestational age + the baby's age in weeks).

- The baby drinks well from a bottle and is gaining weight
- The baby is maintaining his body temperature without a heated bassinet or incubator
- He can breathe uninterruptedly without any pauses.

After the discharge, the parents and baby are invited to Laniado's Premature Baby Clinic for further treatment and monitoring. They meet again with the social worker, who will help with any questions or difficulties that they may experience at home. She is available to them until the baby is in an optimal condition and they feel that do not need any more support and are able to parent independently