

Neonatal Resuscitation

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WHAT IS NEONATAL RESUSCITATION?

- Neonatal Resuscitation is intervention after a baby is born to help it breathe and to help its heart beat.

The resuscitation of an infant consists (of a highly disciplined) series of well-ordered steps in response to the respiratory effort, heart rate and skin color.

No age group is more susceptible to asphyxia or as frequently in need of resuscitation than neonate.

Perinatal asphyxia happens in 2 to 10 per 1000 newborns that are born at term, and in 4 to 19 per 1000 newborns that are born prematurely.

What is Perinatal Asphyxia?

Causes of perinatal asphyxia

How does one remember the Apgar Score?

Initial Steps of Resuscitation
Key points

in neonatal resuscitation

- ✓ **Cardiac Frequency <60 b/min - there is necessity of additional steps**
- ✓ **Cardiac Frequency >60 b/min – Chest compressions may stop**
- ✓ **Cardiac Frequency >100 b/min – Positive-pressure ventilation may stop**

Indications for neonatal resuscitation

- ✓ **Apnea / inefficient breathing**
- ✓ **Bradycardia HR <100 b/min**
- ✓ **Generalized cyanosis**

Why are premature babies at a higher risk?

Newborn evaluation

- ✓ **Provide warmth**
- ✓ **Position; clear airway* (if necessary)**
- ✓ **Dry, stimulate, reposition**
- ✓ **Give O₂ (if necessary)**

Warmth providing

Method:

- **The baby should be placed under a radiant warmer, uncovered**
- **Dried thoroughly**
- **Removed from wet linen**

Drying and removing wet linen to prevent heat loss and repositioning the head to ensure an open airway

Clear the airway

- The baby should be positioned on the back or on the side
- Neck should be slightly extended in the “sniffing position”.
- This will bring the posterior pharynx, larynx, and trachea in line
- Suction the mouth first and then the nose

Clear the airway

Management in case of meconium presence

Stimulation – Methods

- Slapping or flicking the soles (plants) of the feet
- Gently rubbing the newborn’s back, trunk or extremities

Forms of stimulation that may be hazardous

- **Slapping the back**
- **Squeezing the rib cage**
- **Forcing things onto abdomen**
- **Dilating the anal sphincter**
- **Using cold or hot compresses or baths**
- **Shaking**

Giving free-flow oxygen

If the newborn breaths, but central cyanosis occurred, then:

- **He requires humidified, heated oxygen;**
- **Flow rate should be at 5 l/min;**
- **Continue until the newborn's condition is stable.**

Giving free-flow oxygen

Flow-inflating bag

ADVANTAGES:

- **Delivers 100% oxygen all the time**
- **Easy to determine when there is a seal on the patient's face**
- **Stiffness of the lung can be “felt” when squeezing the bag**
- **Can be used to deliver free-flow 100% oxygen**

Self – inflating bag

- ✓ **Will always refill after being squeezed, even with no compressed gas source**

The mask

Keep in mind!

- ❖ **Don't “jam” the mask down on the face**

❖ **Don't allow your fingers or part of your hand to rest on the baby's eyes**

❖ **Don't press on neck (trachea)**

We need 2 persons, in order to perform the chest compression :

- **The first - performs the chest compression**
- **The other one - positive pressure ventilation**

Chest compression

The right hands' position on the chest

to begin the chest compression

There are two different techniques:

- **Thumb technique**

- **Two-finger technique**

Potential complications of Chest Compressions

- **Liver rupture**
- **Broken ribs**

Indications for drug administration

!!! HR < 60 despite PPV and CC during 30 sec

Epinephrine: indications

- ✓ **HR < 60 b/min after:**
- ✓ **30 sec of PPV**
- ✓ **30 sec of CC + PPV**

✓ **Total 60 sec**

Note: Epinephrine is Not indicated before restoring adequate ventilation

Epinephrine: administration

ways:

- 1. Endotracheal tube**
- 2. Umbilical vein**

Volume expansion:

- **Normal saline**
- **Ringer Lactate Solution**
- **Blood group O (I) Rh neg.**

Medication – Volume - Expansion

Prolonged Reanimation Consequences:

- ❖ **Establishment of lactic acidosis**
- ❖ **Cardiac contractility weakness**
- ❖ **Reduced pulmonary blood flow**

**If lactic acidosis is suspected, give
then Sodium Bicarbonate**

Interruption resuscitation measures

**We stop reanimations measures
if:**

- Convince yourself that recovery
processes are adequate**
- You can turn off after 15
minutes of asystole**
- If necessary, unclear prognosis**

**of continuous condition
assessment**

**Discussions with parents and
team**

Oro – tracheal intubation

Indications

- **If there is meconium and the baby has depressed respirations, muscle tone or heart rate**
- **If PPV with bag and mask had no good result in chest rise, or if the need of PPV lasts beyond few minutes**
- **If require epinephrine (it has only through endotracheal tube administration)**

Intubation steps

- **Stabilize the baby's head**
- **Give free-flow oxygen**

- Slide the laryngoscope blade over the right side of the tongue
- Lift the blade slightly

Radiological confirmation

Apnea

Primary apnea

- It occurs after an initial period of rapid attempts to breathe
- Breaths don't disappear
- Cardiac frequency decrease
- Blood pressure is often maintained at the normal level
- Responds to tactile stimulation.

Secondary apnea

- Breaths stops

- **Cardiac frequency decrease**
- **Blood pressure decrease**
- **And there's no any respons to stimulation**
- **For the procces to reverse must be provided assisted ventilation**