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High Blood Pressure in Infants

## March of the Blanketeers



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The most common risk factors associated with High Blood Pressure in newborns include:

* Abnormalities, disease or family history of disease of the:
  + Heart
  + Kidneys
  + Lungs
* Premature birth
* Umbilical catheterization
* Low birth weight
* Certain tumors
* Thyroid problems
* Mother’s use of cigarettes, illegal drugs, or specific medications during pregnancy.

It is important to understand that the presence or lack of a risk factor does not determine whether an infant will get High Blood Pressure. However, some risk factors increase the chance of getting High Blood Pressure more than others.

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Causes

What is High Blood Pressure in newborns?

**Blood pressure** is the pressure exerted on the arteries by circulating blood. It measures how hard the heart works to circulate blood around the body. It can be measured using an instrument called **Blood pressure gauge** (fig.1). These gauges usually provide measurements in two numbers, one above, one bellow. They are usually seen together as “120/80”. The first (top) number, called the systolic blood pressure, measures the pressure when the heart beats. The second (bottom) number, called the diastolic blood pressure, measures the pressure when the heart is at rest. One can be greater or less than the other, but the systolic pressure is usually greater than the diastolic pressure.

**High Blood Pressure**, sometimes referred to as hypertension, is an increase of blood pressure above the normal range**1**. It can occur in anyone regardless of their age, but their causes, treatment, and risk vary greatly depending on age. This article will explain the implications of HBP in newborns.

1) What is ‘normal’ blood pressure?

The systolic and diastolic blood pressure varies depending on various factors, including age, weight, and even height.

For neonates (infants less than 4 weeks old), the blood pressure readings should not exceed 64/41, and for an infant (from 4 weeks to a year old), the blood pressure reading should not exceed 95/58. If a newborn is above these numbers, they are considered to have High Blood Pressure.

2) Underlying issues continued…

**Coarctation of the aorta:** The narrowing of the main artery stemming directly from the heart called the aorta.

**Patent ductus arteriosus:** When theblood vessel between the aorta and pulmonary artery (artery from the heart to the lungs) stays open when it should close after birth.

**Bronchopulmonary dysplasia:** A chronic lung condition in newborn babies, in which their lungs do not develop normally and cause severe difficulty breathing.

**Renal artery stenosis:** The narrowing of one or more of the major arteries of the kidney.



Prognosis (Resolutions)

The outcome greatly depends on the cause of High Blood Pressure, early diagnosis, and time to administer treatment. For example, for infants with High Blood Pressure caused by Umbilical Catheterizations, their outcome is more favorable than an infant with prolonged High Blood Pressure and/or organ damage.

Currently, no specific prevention exists for high blood pressure caused genetically. However, certain actions can be made to prevent some instances of High blood pressure in newborns, such as quitting smoking and drug use (cocaine and heroin) before and during pregnancy.

Since it’s usually caused by an underlying issue, the treatment for High Blood pressure will typically involve threating these issues. Common issue include:

* Coarctation of the aorta
* Patent ductus arteriosus
* Bronchopulmonary dysplasia
* Kidney disease involving kidney tissue
* Renal artery stenosis

More on what these diseases mean here**2**.

Depending on the underlying issue, treatment will usually involve:

* Dialysis of the Kidney
* Blood pressure-reducing medicines
* Surgery, specifically:
  + Organ transplants
  + Repairing the aorta (Coarctation of the aorta)

Some common Signs of High Blood pressure include:

* Pale skin (Pallor)
* Blueish skin
* Failure to gain weight/grow
* Rapid breathing
* Difficulty breathing
* Frequent urinary tract infections
* Irritability, feeding difficulties
* Constant vomiting
* Seizures

It is important to note that these symptoms don’t necessarily indicate High Blood Pressure, as it is often the cause of another underlying disease. Nonetheless, if any of these symptoms appear, it would be recommended that you consult your healthcare provider for a more in-depth evaluation.

Up to **2%** of all infants cared for in modern NICUs are diagnosed with High Blood Pressure.

Prevention and Treatment

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Symptoms



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