# CAUSES AND FEATURES OF DEVELOPMENT OF HYDROCEPHALUS IN CHILDREN.

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**Annotation**: This article defines the causes and symptoms of Hydrocephalus, that is one of the brain pathologies.

**Key words:** Hydrocephalus, cerebrospinal fluid, progressive, stabilized, regressive, hypertensive, normotensive, hypotensive.

**Annotatsiya:** ushbu maqolada bosh miya patalogiyalaridan biri bo‘lgan Gidrosefaliya kasalligining kelib chiqishi sabablari va alomatlari yoritilgan.

**Kalit so‘zalar:** Gidrosefaliya, likvor suyuqligi, progressiv, stabillashgan, regressiv, gipertenziv, normotenziv, gipotenziv.

Hydrocephalus is a disease characterized by the accumulation of excessive cerebrospinal fluid in the ventricular system of the brain. Cerebrospinal fluid is also called CSF, which is vital for the functioning of nervous tissue. CSF is present in both the brain and the spinal cord. In the brain, this fluid is concentrated in four ventricles located in the center of the skull. The two upper ventricles are located in the two hemispheres, and the two lower ventricles are located along the central axis of the brain. The functions of the CSF are various: Protecting nervous tissue from external mechanical influences: It performs functions such as removing harmful substances from the brain and supplying nutrients. The volume of the CSF is relatively small, in infants it is about 50 ml, and in adults it is about 120-150 ml. [1]. This disease is mainly caused by inflammation due to injuries and intoxication during fetal development, and there are also opinions that hydrocephalus is associated with impaired function of small blood vessels. As a result of inflammation, the cerebrospinal fluid (CSF) increases intensively, but it becomes particularly difficult for this fluid to drain. As a result, the volume of the fluid increases, creating pressure on the brain and affecting the skull. In infants whose skulls have not yet hardened, the brain cap begins to swell. The head circumference of a newborn is 34 cm, and by the age of one it is 45 cm, while in children with hydrocephalus this figure is 50-70 cm, and in some cases even more. In congenital hydrocephalus, the brain is enlarged immediately after birth. In some cases, it is detected later. Over time, the skull begins to enlarge, and features such as a humpbacked forehead, widely spaced eyes, and even an unnatural-looking eye socket are noted. The skin covering the brain is very thin, blood vessels are visible on the temples and forehead, and when the child is angry or screams, the blood vessels bulge even more, and the hair becomes sparse.[2].

Excess cerebrospinal fluid manifests itself differently in adults and children. The skull of adults is hard, so the excess cerebrospinal fluid leads to increased intracranial pressure. In children under 2-3 years of age, the situation is completely different. Their skull is quite soft, and therefore hydrocephalus in children often manifests itself in the form of anomalous enlargement of the head circumference. There are three main forms of the disease: open, closed, and hypersecretory.

The closed form of the disease develops when there is a physical obstacle that prevents the cerebrospinal fluid from flowing back into the systemic bloodstream through the intended channels of the skull. The causes of this type of disease can be various cysts, tumors, or hemorrhages.

The open type of hydrocephalus is observed when the mechanism of absorption of cerebrospinal fluid into the systemic bloodstream is disrupted. The causes of this type of disease are usually previous infections, such as meningitis and other similar diseases.

Hypersecretory hydrocephalus is a relatively rare disease, occurring in about 5% of cases. It occurs as a result of excessive production of cerebrospinal fluid. This condition can occur, for example, due to vascular malformations.

In addition, there are such types of hydrocephalus as congenital, acquired and replacement. If the disease is present in a person from birth, it is called congenital hydrocephalus. Acquired hydrocephalus is a consequence of previous diseases. According to the intensity of pathological processes, the disease is divided into acute and chronic types. The acute type develops within a few days, usually in a closed form, and requires immediate surgical intervention. The chronic type develops within a few months. It is often noted in combination with the open type of disease.

Depending on the location of the increased cerebrospinal fluid volume, the disease is divided into external, internal, and mixed types:

In the external type, excess fluid accumulates mainly in the space between the meninges.

In the internal type, the disease affects the ventricles of the brain. This disease is often observed together with the congenital closed type. In addition, internal hydrocephalus can be divided into such types as symmetrical and unilateral. When the increase in the volume of cerebrospinal fluid affects only one of the two symmetrically located ventricles, the unilateral type of hydrocephalus is diagnosed.

In the mixed type, an increase in the volume of fluid is observed both in the ventricles and in the space between the brain shells.[3].

According to the dynamics of development, hydrocephalus is divided into progressive, stabilized (stabilized) and regressive forms. Depending on the level of cerebrospinal fluid pressure, the disease is divided into hypertensive (high pressure), normotensive (normal pressure) and hypotensive (low pressure) types. Statistical data show that one case of hydrocephalus occurs in several thousand babies (from 1000 to 3000 in various sources). Nevertheless, fluid accumulation in the brain is one of the most common developmental anomalies in children. More boys than girls are affected. The disease is most often detected in the first three months of life. As mentioned above, this disease can be congenital and acquired. Congenital hydrocephalus can be caused by various factors, for example:

Injuries during birth;

Fetal hypoxia;

Genetic anomalies;

Infection of the child's body with infectious diseases in the womb.

Infectious diseases that can lead to fluid accumulation in the brain include:

Rubella;

Parotitis;

Herpes;

Toxoplasmosis;

SARS;

Congenital genetic anomalies that lead to the development of hydrocephalus:

Chiari syndrome - brain volume smaller than the volume of the skull;

Congenital narrowing of the cerebral aqueducts;

Insufficient development of the holes for the backflow of cerebrospinal fluid;

Other chromosomal abnormalities.[4].

According to researchers, there are more than 180 causes of hydrocephalus. In infants and young children, symptoms of the disease are usually more pronounced. The first thing to notice is the size of the skull. It should be borne in mind that the head of a newborn grows very quickly - about 1.5 cm per month. However, if the rate of head growth exceeds this value, this should be a cause for concern. However, the size of the head is not the only sign of hydrocephalus, and in some cases this symptom may not be observed at all. It is also necessary to pay attention to the scalp. Usually, in hydrocephalus, it is thin and shiny, with a network of blood vessels visible on it. Although the skulls of children are flexible, in some cases, an increase in the amount of fluid in the cranial cavity can lead to compression of various parts of the brain. In addition, in infants, swelling of the cranial vault and bulging of the skin at the junction of the skull bones are considered signs of the disease. A child with hydrocephalus may experience various neurological disorders:

Paresis of individual parts of the body;

Changes in muscle tone;

Muscle weakness;

Convulsions;

Poor sleep;

Poor appetite;

Tremors of the hands and jaw;

Difficulty holding the head, standing, and sitting;

Delayed speech and development.

There are several ways to diagnose the disease. It is often easier to diagnose the disease in children than in adults. In children, the disease is often detected by a pediatrician who regularly examines the child. The doctor may pay attention to specific signs of hydrocephalus, such as an enlarged head, a bulging skull, a separation of the skull sutures, changes in skin color, and characteristic neurological symptoms. To facilitate diagnosis, parents are advised to regularly record the baby's head circumference. If the disease is suspected, the pediatrician may refer the child to a neurologist, neurosurgeon, or pediatric surgeon.[5].

**References:**

1. S.O. Safarova, D.R. Madazizova. "Clinical Foundations of Special Education". "Mahalla va Oila" Publishing House. Tashkent-2022

2. M.R. Polatkhojayeva. "Clinical Foundations of Defectology". Tashkent-2013.

3. https://mymedic.uz/kasalliklar/nevrologiya/gidrosefaliya/.

4. https://med24.uz/uz/bolezn/hydrocephalus

5.https://www.smclinic.ru/diseases/hydrocephalus/