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Extended Abstract
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Pathology Summit 2018: The total count of RBC and peripheral blood film in hemolytic anemic patients with and without G-6PD enzyme deficiency - Razzak M - Dhaka National Medical College, Bangladesh.

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Background:

The erythrocyte enzyme deficit G-6PD is an important cause of hemolytic anemia with a decrease in bilirubin and an increase in various types of abnormal cells - hypochromic microcytic cells, target cells, nucleated red blood cells, tears, macrocytic cells, schizocytes, Heinz body, and erythrocyte fragmentation, spherocytosis and polychromatic.

Objective: To assess the number of red blood cells and the peripheral blood film in the erythrocyte enzyme G-6PD deficient in hemolytic anemia in order to find their status. Method: The cross-sectional study was carried out at the Department of Physiology, BSMMU, Dhaka from July 2008 to 2009 to observe the number of red blood cells and the peripheral blood film in patients with hemolytic anemia. For this, the total number of 50 hemolytic anemia patients (groups B) whose ages varied from 5 to 30 years of both sexes was studied. Among them, 25 were without hemolytic anemia deficient in G-6PD (group B1) and 25 were hemolytic anemia with deficiency in G6PD (group B2). Age and sex corresponded to 30 apparently healthy subjects with normal G-6PD blood were included to observe the baseline data (group A) and also for comparison. The subject was selected in the ambulatory hematology department of the Bangabandhu Sheikh Mujib Medical University in Dhaka. The enzymatic level of blood G-6PD erythrocytes and the total number of red blood cells were measured by standard laboratory techniques. Data analysis was performed by the unpaired apprentice t-test.

Hemolytic anemia is an illness in which red blood cells are demolished faster than they can be. The devastation of red blood cells is called hemolysis. Red blood cells transmit oxygen to all portions of your body. If you have less than normal red blood cells, you have anemia. When you have anemia, your blood cannot supply enough oxygen to all of your tissues and organs. Without enough oxygen, your body cannot function as well as it should.

Hemolytic anemia can be inherited or acquired:

Hereditary hemolytic anemia occurs when parents pass the disease gene on to their children.

Acquired hemolytic anemia is not something you were born with. You develop the condition later.

What causes hemolytic anemia?

There are 2 main types of hemolytic anemia: hereditary and acquired. Dissimilar diseases, environments or factors can cause each type:

Inherited

With the congenital type, parents pass on the genes for the condition to their children. Two mutual grounds of this type of anemia are sickle cell anemia and thalassemia. These conditions yield red blood cells that do not conscious as long as usual red blood cells.

Acquired

With this type of anemia, you were not born with a certain condition. Your body makes normal red blood cells, but they are then destroyed. This can happen due to:

• Some infections, which can be viral or bacterial

• Medicines, such as penicillin, antimalarial, sulfonamides or acetaminophen

• Blood cancers

• Autoimmune disorders, such as lupus, rheumatoid arthritis or ulcerative colitis

• Some tumors

• An overactive spleen (hypersplenism)

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• Mechanical heart valves that can damage red blood cells when they leave the heart

• A severe reaction to a blood transfusion

Some types of acquired hemolytic anemia are short-lived (temporary) and disappear over several months. Other types can become permanent (chronic). They can go away and come back over time.

Each person's symptoms may vary. Symptoms may include:

- Abnormal anemia or deficiency of color of the skin
- Yellowish skin, eyes, and mouth (jaundice)
- Dark-colored urine
- Fever
- Weakness
- Dizziness
- Confusion
- Can't handle physical activity
- Enlarged spleen and liver
- Increased heart rate (tachycardia)
- Heart murmur

Symptoms of hemolytic anemia may resemble other blood or health problems. Always consult your health care professional for a diagnosis.

How is hemolytic anemia diagnosed?

Your healthcare professional may think that you have hemolytic anemia based on your symptoms, medical history, and physical examination. Your supplier can also order the following tests:

Complete blood count (CBC). This assessment measures many different parts of your blood.

Other blood tests. If the CBC test shows that you have anemia, you can have other blood tests. They can find out what type of anemia you have and how severe it is.

Urine test. This can check hemoglobin (a protein in red blood cells) and iron.

Aspiration or biopsy of bone marrow. This encompasses taking a minor sample of bone marrow fluid (aspiration) or solid bone marrow tissue (called a central biopsy). The sample is typically taken from the hip bones. The number, size and maturity of blood cells or abnormal cells are checked.

How is hemolytic anemia treated?

Your healthcare professional will create a treatment plan based on:

• Your age, general health and medical history

• How sick you are

• The cause of the disease

• How well you manage certain medications, treatments or therapies

• If your condition should get worse

• Your opinion or preference

Treatment for hemolytic anemia will vary depending on the cause of the disease. Treatment may include:

• Blood transfusions

• Corticosteroid drugs

• Treatment to strengthen your immune system (using intravenous immunoglobulins)

• Rituximab

In more severe cases, the following treatments may be necessary:

• Surgery to remove the spleen

• Medicines to reduce the strength of your immune system (immunosuppressive therapy)

• Living with hemolytic anemia

Work with your healthcare professional to reduce your risk of degrading red blood cells and your risk of infections. For example, the cold can often trigger the breakdown of red blood cells. To protect yourself, avoid the cold, wear warm clothing and keep your home warm

You can also diminish your hazard of infection by:

• Stay away from sick people

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• Avoid large crowds

• Wash your hands often

• Avoid undercooked food

• Brush your teeth regularly

• Get the flu shot every year

Result: the total number of red blood cells was significantly lower in group B2 compared to group A and also in group B1 which were statistically significant. Various types of abnormal cells were found in group B1 and in group B2.

Conclusion: From this study, it can be concluded that increased hemolysis of red blood cells with a low number of red blood cells and various types of abnormal cells were found in anemic hemolytic patients deficient in G-6PD which could be defects membrane.

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