ANAEMIA – What you should know

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by Dr. J.A. Ongeng'o

Jack called me at my house one night at 2.00 a.m. and told me of his severely sick son whom he had brought to the Paediatric observation ward in Provincial hospital in Kisumu.

"He has had malaria for the last one week and has been on treatment. His condition has not improved much and though last evening the temperature had settled, his breathing was not good. This morning he just cannot breathe and looks like he is going to die in the next few minutes. Please come and assist. I am picking you in the next couple of minutes!" Jack said desperately.

Jack was not the kind of friend who would call me just like that for no good reason. From his tone I knew something was serious and my instant attention was mandatory. I quickly changed from my sleeping gown and within a short while his car screeched to a halt outside my house. I looked at him once and my heart missed beat. He looked horrified. I quickly got into the car and he drove to the ward. None of us talked and both of us were quite tense.

The nurses on night duty were surprised but glad to see me. None of them had called for me but my presence was a definite welcome relief. Susy, Jack's wife, sat on the chain next to my desk holding their 3 year-old son and shedding tears. The boy was restless and could not respond to verbal commands. His mentation was definitely obtunded and quite obviously breathless! He was in good nutritional status but his conjuctiva was paper white, pulses were bounding with very high volume at over 140 beats per minute. The left chest was actively visibly pulsating. On closer examination, the lungs sounded congested and both spleen and liver were enlarged. The liver was painful to touch.

Dr. J. A. Ogeng'o: "The Signs and symptoms found in the anaemic patients are a mixture of those due to the resultant anaemia and those due to the underlying disease."

For the previous three days, this boy had been receiving treatment for malaria and pneumonia and indeed had received a dose of penicillin and chloroquine that night.

"Oh my God, this is very severe anaemia. This boy is in severe congestive cardiac failure and without blood, he is going to die in the next two hours. Please give him 20mg of lasix and 0.125mg of digoxin. Pass me the drugs and another Syringe."

I whispered to the community nurse, ensuring Jack and Susy only heard the last sentence. We quickly gave the drugs and obtained a sample of blood and I personally rushed to the laboratory with Jack. Gladys quickly received the sample and went into the screening, grouping and cross-matching room. In a short while, she pronounced the boy blood group AB+ and assured me blood was available.

I sat down and told Jack his son would be alright. In 30 minutes Gladys came out and handed over to me a 500ml pack of wholeblood — compatible. We rushed back to the ward where I immediately started the transfusion and kept watch for the next 30 minutes. All was going well and I assured Jack that all would be well.

"Let me retire to bed," I said confidently.

It was a warm Tuesday morning and the mosquitoes had retired. I lay flat on the bed and within minutes my eyelids grew heavier and my head sunk into a deep dream. In the dream, we compared anaemia with malaria and examined the mortality rates.

Out of the 144 cases of anaemia only 12 died, 100 were transfused and relative donors were very cooperative and the laboratory quite fast!" We closely went through the mortality figures for the month of February 1990 and all of us were thrilled.

I woke up at 7.30 a.m. washed my face and walked straight to where Susy sat. She stood up and hugged me at once as Jack said, "Thank you Doc". The boy had received about 300ml of blood and could now respond to verbal commands and speak. His breathing was as good as normal and he was pink. By 10.00 a.m., the transfusion was over and the young man was playing with his toys. He was observed on the ward for 24 hours and we allowed them home on blood replenishing drugs and antimalarials. A previously healthy child had suddenly developed anaemia due to malaria and could have died were blood not

obtained immediately.

WHAT IS ANAEMIA?

This is condition in which blood oxygen carrying capacity is below optimal either because the blood volume is low or the number of Red Blood cells is low or the oxygen carrying pigment, haemoglobin level, is low. This means that it is relative and the values vary with age, sex, occupation, geographical origin etc.

CAUSES

• *Blood loss*

Sudden loss of large amounts of blood can occur due to the following:

★ Accidents in which the bleeding can be external or internal
★ Childbirth
★ Abortions
★ Ruptured Ectopic pregnancies
★ Burns
★ Circumcision
★ Fights

Chronic blood loss can occur in

★ Habitual nose bleeders
★ Bleeding in the alimentary canal as in peptic ulcer disease or following worm infestations
★ Slow bleeding through the gums joints etc as may happen in people with bleeding disorders.

• *Excessive Red Blood Cell Destruction*

Examples are:

★ Antibodies due to mismatched blood
★ Infections commonly malaria
★ Drugs like Fansidar and other chemical agents
★ Physical trauma to the cells
★ Destruction by a hyperactive spleen. This is usually an enlarged spleen out of disease that hordes blood and destroys Red Blood cells before they are due for destruction at about 120 days.
★ Inherited disorders in the structure and function of the Red Blood cells as in sickle-cell disease in which the abnormal shapes make the cells more vulnerable.

• *Inadequate production of mature Red Blood Cells*

This is due to:

★ Nutritional deficiency of blood forming elements especially iron and folic acid, proteins, vitamins and other minerals.
★ Impaired bone marrow function due to leukemias, lymphomas, fibrosis of the bone marrow, invasive cancers of non- blood origin, chronic diseases like Tuberculosis, chronic kidney disease, Endocrine organ diseases, physical and chemical agents etc.

Different causes singly or in combination lead to anaemia depending on the age, sex and geographical location.

SIGNS AND SYMPTOMS

The signs and symptoms found in the anaemic patients are a mixture of those due to the underlying anaemia and those due to the underlying disease. In this article, only those common to all anaemias are discussed. Most of them reflect the changes in circulation aimed at delivering enough oxygen to the tissues in a system of reduced oxygen carrying capacity.

They include:

- Decreased exercise tolerance
- Palpitations
- Headaches
- Difficulty in breathing
- Faintness, vertigo
- Increased sensitivity in cold
- Drowsiness
- Loss of appetite, nausea and or vomiting

On examination the patients usually look pale, weak and exhausted, and have a high pulse rate and the pulsations may be visible and heart activity dramatic. They may also, depending on the severity have oedema, enlarged tender liver, engorged neck veins and obvious difficulty in breathing.

Closer examination of the heart may reveal enlargement and abnormal sounds called murmurs. These signs and symptoms occur in various grades and combinations depending on the course, and severity of the anaemia.

DIAGNOSIS AND TREATMENT

Anaemia per se is not a diagnosis - the cause of the anaemia is. A good number of the causes are obtained from the history which includes: age, occupation, dietary habits, parity, birth intervals, mode of delivery, menstrual patterns in females, geographical origin, family and social history, duration and progress of the illness.

Physical examination is paramount with specific attention paid to:

★ General state of health
★ Level of palor
★ Jaundice, cyanosis
★ Colour and complexion of the tongue
★ Angles of the mouth
★ Bleeding tendencies in the mucus membranes
★ Finger and toe nails
★ Oedema
★ Size of spleen and liver
★ Condition of the skeleton

This adds a great wealth of knowledge. When and where there is still doubt, investigations are carried out which include:

★ complete haemogram - a report of all the important blood indices
★ peripheral blood film adds information on size, shape an numbers of blood cells; level of pigmentation; presence of other inclusions and or parasites
★ stool examination for parasites for example Hookworm
★ Bone marrow examination

Usually these would provide the diagnosis on which the treatment is based. Examples of such specific treatment include:

- Deworming in cases where the anaemia is due to hookworm and other intestinal parasites
- Anti-malarial treatment and or prophylaxis in malaria induced anaemias
- Dietary improvement when deficiency is the problem
- Treatment of leukemic processes when they are the cause etc.

However, whatever the cause, when anaemia is severe, whole blood or specific blood components are transfused.

OUTCOME AND CONCLUSION

Uncorrected, anaemia usually progresses in severity and leads to congestive heart failure and eventual death. In many cases, if the cause of the anaemia is systematically searched for and corrected, life is saved or at least pro-

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