RESEARCH ARTICLE

INTERPRETATION OF COMPLETE BLOOD CELL COUNT IN FIRST M.B.B.S STUDENTS.

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Manuscript Info	Abstract
	A complete blood cell count estimation is one of the most common Haematologypracticals done by First year M.B.B.S students in their practical class. It is done to make them understand the basics and to interpret their values with an assembly of instruments used for counting purpose. Anaemia is a widely prevalent public health problem especially in teen age group students. This study was planned to find really how many I M.B.B.S students are healthy and to guide them to lead a healthy life.

Materials and Methods:-

Study was carried out from September 2015 to December 2015 M.B.B.S students attending Haematologypracticals. Consent obtained from students both verbally and in written form. College Ethical Committee approval obtained. Around 154 students were selected for the study after a thorough history taking. Subjects with history of chronic infection, infestation , diseases of the kidney, liver, cardiac problems, any surgery undergone , blood donation, recurrent jaundice, drug intake, allergic manifestation , menstrual cycles etc., were enquired. Diabetic patients on Ayurvedic therapy are more prone to develop Lead poisoning. Study was undertaken only in the afternoon.

Discussion:-

While interpreting a CBC report, a student must focus on the following variables;
* Haemoglobin; Normal value is 12 to 14 gms / dl in females & 14 to 16 gms / dl in males. It is a general indicator of Anaemia or Polycythemia.
* RBC Count; Normal Count in males is about 5 to 5.5 millions / cu mm & in females 4.5 to 5 millions / cu mm of blood. A quantitative reduction or increase gives an idea about Anaemia or Ineffective Erythropoiesis.
* MCV; A key parameter for classification of Anaemia.
* Normal values of individual parameters vary with the age, sex of a person.
* RBC associated parameters are lower and platelet counts are higher in women compared to men.
* Acquired Microcytic Anaemia that is not IDA suggests the possibility of Anaemia of chronic diseases like Tuberculosis, Rheumatoid Arthritis, Diabetes Mellitus etc.,
* Macrocytic Anaemia may be due to Vit B12 &Folate deficiency, Liver disease, Hypothyriodism, Hemolysis etc.,
* Vitamin B12 deficiency is common in Indian children especially strict vegetarian and they are commonly associated with severe periungual pigmentation and knuckle pigmentation. Bone marrow evaluation helps to rule out Myelodysplastic syndrome. Thyroid and Liver Function tests may be necessary to work out for haemolysis.
* Normocytic Anaemia is seen in chronic disease, Bleeding tendencies, Hemolysis, Anaemia of renal insufficiency etc.,
* Reticulocyte count provides clue for Hemolysis. Elevated LDH may detect Hemolysis; raise in creatinine will confirm Anaemia of renal failure.
* According to Bernstein's Theory,

Blood Group	Western and	Indian Population in %	I M.B.B.S Students	
A	44.4	19	39	25.32%
B	8.5	41.2	44	28.57%
O	43.5	31.3	60	38.97%
AB	3.3	9	9	5.84%
Blood Group	Western and	Indian Population in %	Chennai	
A	41	31	22.3	
B	9	33	33.4	
O	47	28	37.6	
AB	3	8	6.9	

Peripheral smear helps to diagnose sickle cell and dimorphic Anaemia.
WBC with Differential Count gives clue for Leucocytosis or Leucopenia, infections, Leukaemia etc.,
Normal WBC Count is 4,000 to 11,000 cells / cu mm of blood. The percentage of Neutrophils is 60-70 % ;Eosinophils 1-4% ; Basophils 0-1 % ; Lymphocytes 20 -40 % ; Monocytes 2-8 %.

Every Leucocytosis does not mean pyogenic infection. Steroids, Myeloproliferative disorders, periodic fever syndrome, systemic onset of Juvenile Rheumatoid Arthritis are some of important causes of non infectitiousleucocytosis.

Leucopenia may be due to post viral infection, sepsis, Tuberculosis, drug induced, auto immune disorder etc.,

Observation:-
When the estimated RBC values were correlated with the percentage of Haemoglobin content, it showed the following results. For male students , it was 0.767 and for female students, it gave 0.694 correlation. On taking average of student population as a whole, the result obtained showed a significant high correlation of about 0.730.

Conclusion:-
Anaemia is due to lack of Iron, Vitamin B12, Folic acid in the diet of students irrespective of age, gender and socio economic status.
Its preferable to do CBC on Automated Cell Counter for a meaningful interpretation.
Machines should be periodically standardised.
Interpret WBCs always in terms of absolute values of each type.

In case of treatment of Anaemia follow up, CBC must be done to evaluate response and ensure not only RBCs ,Hb increases to normal but also abnormal indices have returned to normal. It is good idea to ask for Reticulocyte count along with CBC in evaluating Anaemia. A prompt Haematologist consultation suggested if there's severe cytopenia, pancytopenia or cytosis of any type .

Recent Research data shows ABO blood groups are associated with certain diseases. Foreg., Gastric cancer , Periodontal diseases, Epistaxis with O Group.

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