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Study of haemoglobin level among school students from rural area near Sillodtown district Aurangabad.

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ABSTRACT:

Blood is the prominent and most important fluid in the body of animals as well as human being that delivers necessary substances to the body of every living organisms. The main content of blood is the haemoglobin. Haemoglobin (Hb) plays an important role in transport of oxygen in the blood to various parts of the body. So it is necessary to maintain the normal haemoglobin level for daily physiological activity of the body. Abnormal or decrease level of haemoglobin causes various disorders in the life of living organisms. The haemoglobin level varies according to the sex and age. Some environmental and nutritional factors are also responsible for the level of haemoglobin. Decrease level of haemoglobin creates disease like anaemia in the school childrens. In the present study haemoglobin was estimated by Sahlis methods and sample collected by finger prick. This method use for the practical work in undergraduate level. During the study it was observed and found that the haemoglobin level in the school children is variable according to the observed value and collected data in the rural area near Sillod town district Aurangabad.

KEYWORDS: Haemoglobin level, School students, Sillod, Aurangabad.

INTRODUCTION:

Haemoglobin is an iron rich proteins present in the red blood cells which helps red blood cells to supply oxygen from lungs to other parts of the body tissues. Hence reduced iron content from the blood creates various disorder like headache, fatigue etc. (WHO, 2011 and Kassebaum et. al. 2014). Blood is essential fluid derived from mesoderm germinal layer and made up of connective tissue, which carry vital function such as delivery of nutrients, hormones and oxygen as well returned waste and carbon dioxide from cells, tissues of the organs.Hemoglobin are the most essential respiratory pigment to carry oxygen as well as carbon dioxide through plasma fluid. With the help of carbon dioxide it maintain the acid base balance inside the body fluid.The red blood cells consist hemoglobin, it is conjugated protein iron containing oxygen transport metalloprotein (Matronet. al.1993). Hemoglobin having tendency to bind with oxygen between 1.36 and 1.37 ml oxygen per gram of hemoglobin, (Domniguez De Villota ED et. al.1981).In human being hemoglobin molecule can bind four oxygen molecule with the help of four polypeptide chain, (Costanzo, Linda S. 2007).Hematological parameters fluctuates by different factors such as population health status which is sex, age, ethnic as well as social and environmental factors (KarazawaEH, et. al.1989).The aim of the study was to estimate the range of hemoglobin level among school children of 11-14 year age and investigation of their haemoglobin values.

MATERIALS AND METHOD:

The present work is carried out on the field level with the help of undergraduate 15 trained students in the Z. P. School at Rahimabad near Sillod town, Dist. Aurangabad. For the analysis of haemoglobin 114 students were selected from the school and collect the blood samples by finger prick technique. We use Sahli's method for the determination of hemoglobin. For this method 0.1 N HCL solution freshly prepared before the analysis of haemoglobin. As per sahlis method blood sample is mixed with 0.1N dilute HCL, this creates broken down plasma membrane of red blood cells and release of hemoglobin and it turns into brown colour hematin. Now this colour is matched with standard tube by added single drop of distilled water and stirringthe sample.This procedure is continues till sample matched with standard tube and record the obtained value of haemoglobin.

RESULT AND DISCUSSION: Forthestudy 114 school students according to the rural population in which the school located in the rural area was selected for study of haemoglobin level among the students. The work is carried out in the Z. P. School on site situated in the small village Rahimabad, in tehsil Sillod, district Aurangabad. During the study period it was recorded that the haemoglobin level among the school students was found in variable ranges Table 1. It also showed that the some obstacles related to the health faced by the students those are insufficient range of haemoglobin level.

Table: 1. Number and percentage of students according to Haemoglobin range.

Total Sample Assessed	Range of Hb	No. & % of students According to Hb range
114	Normal (> 11.5 g/dl)	54 (47.36)
	Mild (11-11.4 g/dl)	20 (17.54)
	Moderate (8-10.9 g/dl)	24 (21.05)
	Lower (< 8 g/dl)	16 (14.03)

During the study period it was observed that 16 number of the students of this school shows more or less obstacles in their health due to the lower haemoglobin level, while 44 number of the students shows moderate obstacles in their health because they are having moderate and mild level of haemoglobin. The student'sshows beneficial effect regarding the overall health performance, like uniform health status, minimize the health obstacles because the range of haemoglobinwas recorded nearby normal level in 54 number of students.During the study period it was observed thatthose students are having lower range of haemoglobin level shows obstacles related to the health, while the students of sufficient or nearby normal range of haemoglobin level shows beneficial effects regarding the health as compare to the students those are having insufficient or lower range of haemoglobin level.

For proper beneficial effect related to the health of students requires necessary or normal range of haemoglobin level. During this study it was observed that the proper or nearby normal range of haemoglobin level is foundin 54 (47.36%) of students i.e. more than 11.5 g/dl. out of 114 students and shows beneficial effect regarding the overall health performance of the students, like uniform health status, minimize the disorder, while 20 (17.54%) of students shows mild range of haemoglobin level i.e. 11-11.4 g/dl., 24 (21.05%) of students shows moderate range of haemoglobin level i.e. 8-10.9 g/dl. And 16 (14.03%) of students shows lowerrange of haemoglobin level i.e. less than 8.0 g/dl, these findings are more or less correlated to the findings of (Jhansi Rani et. al. 2017) reported that childhood anemia still continues to be a significant public health problem in school children between 6-12 years, (Gupta et. al. 2014) reported anemia was highest among 11-25 years of age group,(Bekele et. al. 2014) who reported that the prevalence of anemia due to low level of haemoglobin among the school aged childrens was 23.66%, (Mahmud et. al. 2013) who reported11% anemia from northen part of Etiopia, (Amitava et. al. 2014) reported that variation among haemoglobin values found in adult rural population of west Bengal. More or less similar results are also reported by (Priyanka et. al. 2016) and (Hawkins et. al. 1950) reported 11.2 and above range of haemoglobin value in the children among 7- 14 years old in Sakatoon, Canada this value also correlated to the haemoglobin value of 54 students those are having more than 11.5 g/dl range of haemoglobin level in the present study.Experts investigation shows hemoglobin level in girls age 1-5 year is 10.9-15.0, 5-11 years is 11.9-15.0 and 11 -18 years is 11.9-15.0, while this range in boys were 1-5 years is 10.9-15.0, 5-11 years is 11.9-15.0 and 11-18 years is 12.7-17.7 (Deborah Weatherspoon, 2018) these investigations also more or less correlated to the results of present study.

CONCLUSION:

From the above study and observations, it can be concluded that the insufficient or lower range of haemoglobin level in those studentsthey have faced obstacles in their health as compare to the students those are mild, moderate range of haemoglobin level. While the beneficial effects regarding the overall

health status of the school students is due to the normal range of haemoglobin level compare to those students are having lower, mild and moderate range of haemoglobin level in the study area. For the beneficial effects regarding the health of students it is necessary to maintain the normal or sufficient range of haemoglobin level. Therefore it is necessary to maintain the normal range of haemoglobin level among the school students and to reduce or to minimize the obstacles in the health.The variation in the range of haemoglobin value it may be due to the regional and geographical variations. It may be also due to the family background and life style in the study area. Further detail studies need to design for improvement of the range of haemoglobin level among the school students in the study area. It is ultimately helpful to improve the health performance of the students and to increase the range of haemoglobin.

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