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Association of susceptibility to eating behavior with hemoglobin concentration in females

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ABSTRACT

Background

There is an increase in the prevalence of eating disorders in developing countries including India. Young females were reported to be at risk of eating disorders. Hematological complications including anemia was reported to occur commonly in patients suffering with eating disorders like anorexia.

Objectives

The present study was undertaken to observe the association between the hemoglobin concentration with susceptibility to eating disorders in young females.

Methodology

A total of 30 females, with in the age group of 18-24 were part of the study after obtaining the written informed consent. The hemoglobin levels were estimated by Sahli's Method. Eat-26 questionnaire was used to assess the susceptibility to eating disorders of the participants. Data was analyzed by using SPSS 20.0. Pearson Correlation coefficient was used to observe the association between the variables.

Results

The mean value of hemoglobin was 10.643 ± 1.640 gm %. The mean score of Eat-26 was 12.813 ± 7.484 . The value of R is 0.0668, which indicates positive correlation between the variables. The value of R^2 , the coefficient of determination, is 0.0045.

Conclusion

There was positive correlation between susceptibility to eating disorders and the hemoglobin concentration in the females. We recommend further detailed studies in this area to understand the mechanism of the association between the variables to develop therapeutic methods for the management of disorders associated with eating behavior.

Keywords: Hemoglobin; Eating disorder; Females.

INTRODUCTION

Hemoglobin is the component present within the red blood cells. It is made up of two units called heme and globin. Decrease in the concentration of hemoglobin below 11 g/dL of blood, is considered as anemia according to the guidelines of World Health Organization. Anemia is one of the major public health problems in developing countries including India. [1] Earlier studies reported that an eating disorder called pagophagia where the patient's eats one tray of ice per day was cured by administration of iron. [2] In fact anemia is one of the complications observed in anorexia nervosa. [3] Changes in the peripheral blood cells is a common observation during anorexia nervosa. However, these changes disappear followed by sufficient re feeding. [3] Apart from anemia other complications of blood includes decrease in the white blood cells and platelets. [4] This changes may be due to morphological alterations of the bone marrow. [5] It was reported that bone marrow undergoes hyperplasia in anorexia nervosa. [6] In India, iron deficiency anemia is more common and females are at risk as they lose more iron from the body during menstruation. [7] The present study was undertaken to observe the association of susceptibility to eating disorders with hemoglobin concentration in females.

MATERIALS AND METHODS

Study design: Cross-sectional study

Study setting: The present study was conducted at Department of Physiology, Vishnu Dental College, Bhimavaram.

Study participants

A total of 30 females, with in the age group of 18-24 were part of the study after obtaining the written informed consent. Apparently healthy and willing participants were included in the study. Those with any serious disorders and unwilling participants were excluded from the study.

Estimation of hemoglobin

Hemoglobin was estimated by Sahli's Method.

Assessment of susceptibility to eating behavior

Eating attitude test is a standard questionnaire to assess the susceptibility to eating disorder. It comprises of 26 items. The participants were asked to respond on a six point likert scale. [8]

Data analysis

Data was analyzed using SPSS 20.0. Pearson correlation coefficient was used to observe the correlation between the variables. Data was presented as mean and SEM.

RESULTS

The mean value of hemoglobin was 10.643 ± 1.640 gm %. The mean score of Eat-26 was 12.813 ± 7.484 . The value of R is 0.0668 for association between susceptibility of eating disorder and hemoglobin levels. This indicates positive correlation between the variables. The value of R^2 , the coefficient of determination, is 0.0045 (table no 1)

Table no 1: Association of hemoglobin concentration with susceptibility to eating disorders.

Hemoglobin concentration (gm%)	Eat-26 score	value of R	R ²
10.643±1.640	12.813±7.484	0.0668	0.0045

(Data was presented as mean and SEM)

DISCUSSION

Adolescence is a transition stage and in this stage more dietary supplements are required. Earlier studies reported that adolescent girls are more prone to anemia when compared with other age groups. [9] Though the changes in the blood parameters were examined by many researchers, their prevalence was still in debate. [10] Most common eating disorders observed in adolescent females are anorexia nervosa and bulimia nervosa. [11] The problem of having eating disorder not only burden to self but also to the family. [12] It was reported that 15% of the students of professional courses are susceptible or sub threshold level of eating disorders in India.[13] The present study was aimed to observe the association of hemoglobin concentration with susceptibility to eating behavior in females. Positive correlation was observed between the variables. That indicates that the individuals those who are more susceptible to eating disorders has lower hemoglobin concentration. This information may be used for identifying the people who are more susceptible to eating disorders in the early phases. So that adequate interventions may be advocated to those individuals to prevent or delay development of the eating disorders. Eating disorders both over and under eating was hazardous to health. Especially in the student population this awareness has to be brought about.

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LIMITATION

The study sample size was less which was a major limitation. The results may not be generalized as the study was conducted only at one centre.

CONCLUSION

There was positive correlation between the susceptibility to eating disorders and hemoglobin concentration in the females. We recommend further detailed studies in this area to understand the mechanism of the association between the variables to develop therapeutic methods for the management of disorders associated with eating behavior.

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