

Anemia in High School Students: A Theoretical Analysis

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ABSTRACT

At present, it is observed in educational institutions that anemia is seriously affecting the cognitive development of students, this fact is constantly worsening because students have a lack of iron intake in the food they eat and this seriously affects the academic performance of students; however, it is imperative to implement public health policies to reverse this problematic reality. The methodology used was basic, descriptive and non-experimental design; research papers, scientific articles, specialized books, databases and statistical reports were used. The objective was to analyze anemia in regular elementary school students.

Keywords: Anemia; Iron; Health; Education; Society

Introduction

The problem of anemia in elementary school students has a significant impact on the development of learning skills; in this sense, a balanced diet can prevent various health conditions in students; anemia is the alteration that occurs when the level of hemoglobin is decreased in red blood cells and consequently does not fulfill the function of transporting oxygen from the lungs to the tissues of the human body [1]. According to WHO data, there is an average of 47% of developed and developing nations with anemia worldwide [2]. In this sense, anemia is a pathology due to a decrease in hemoglobin, which is used to transport oxygen in the blood, and also in erythrocytes [3]. Hemoglobin is a protein macromolecule made up of a heme group which is composed of iron and gives the blood its red color; and the other portion called globin which are tetramers made up of two pairs of polypeptide subunits (2 alpha and 2 beta) [4]. For the synthesis of hemoglobin, iron is used, which is a mineral stored in the body [5]. This mineral is also found in enzymes and neuronal transmitters [6], which is why its scarcity causes delays in the development of behavior, at the mental and motor levels, and also impairs the speed of nerve conduction in the sensory systems [7]. In this sense,

the degree of anemia can be variable, depending on the underlying molecular mechanism, symptoms may appear in infancy, childhood or adulthood [8,9].

Likewise, iron deficiency anemia is a nutritional condition that significantly affects children from different socioeconomic strata and its prevalence is higher in children from populations with low socioeconomic and educational resources [10]. The symptoms presented by the anemic patient will depend on age, the speed of onset of anemia, its severity and cardiovascular status [11]. The symptoms that characterize anemia are: fatigue, drowsiness, lack of appetite, malaise, dizziness, skin pallor, muscle weakness and feeling cold [12]. In the most severe cases, the child may become irritable, have a reduced level of growth, poor school performance, among others [13]. Iron is fundamental in neuronal development and its deficiency is one of the main causes of anemia [14]. One of the main health problems in Peru is the nutritional status of the general population; there are several risk factors that condition people to have a nutritional system deficient in iron, which generates a public health problem, which is the iron deficiency associated with anemia [15]. The objective of the research was to analyze anemia in regular elementary school students.

Methods and Materials

For the present research, the type of research was basic, descriptive and of non-experimental design, based on the review of scientific literature including research papers, scientific articles, specialized books, databases and statistical information.

Discussion

According to the research conducted so far, anemia generates a factor that affects the normal development of the human person and also affects society as a whole in socioeconomic terms [16]. Iron deficiency anemia in children has been related to neuronal damage particularly important during infancy, a period in which brain development is at its peak [17]. In Ecuador, chronic malnutrition rates in regions such as Chimborazo (40.3%), Cotopaxi (34.2%), Bolívar (31.7%), Imbabura (29.9%), Loja (28.7%), Tungurahua (28.5%), Cañar (26.5%), Carchi (20.5%), and Carchi (20.5%). 5%), Carchi (20.2%) and the Amazonian provinces (21.3%) have, in that order, rates of chronic malnutrition higher than the national average, which is closely related to the presence of anemia in the pediatric and adolescent population [18]. In Peru, a study conducted with students on the association between anemia and school performance found that 25.93% of anemia was observed in the study population; a significant association was found between anemia <12 g/dL and overall performance (OR: 4.09 p= 0.047 IC95%=1. 01- 20.591), anemia <11.5 and overall performance (OR: 5.60 OR: 5.6 IC95%: 1.19 - 27.14 p: 0.01) [19]. Finally, a study conducted in Lima, Peru with 226 students between first and fifth year of high school found a statistically significant relationship between anemia and academic performance with students with lower school performance being those with anemia [20]. Likewise, a study in Lima, Iquitos and Tarapoto found a relationship between anemia and school performance (p=0.000<0.05; p=0.003<0.05; p=0.046<0.05), the lower the blood oxygen concentration, the lower the academic performance of schoolchildren [21-23]. In Bolivia, iron deficiency is the most common nutritional disorder and the main cause of anemia, with an overall prevalence of anemia of 56%, reaching 86.6% in children between 6 and 23 months of age and 34.7% in schoolchildren [24]. This increased need is not covered by the usual diet which has insufficient amounts of iron and/or has a low bioavailability of this nutrient.

Conclusion

Iron deficiency is an essential factor for the adequate integral development of students due to the fact that its intake intervenes in a series of vital processes in the human being; in this sense, public health policies should be adopted through intervention programs for the care of the school population with anemia.

Conflict of Interest

The author declare that they have no competing interests.

Author's Contribution

The author contributed to project conception and critical review of manuscript. The author read and approved the final manuscript.

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