PATTERN OF IRON DEFICIENCY ANEMIA IN PEDIATRIC EMERGENCY ROOM AND ITS RELATION TO PROGNOSIS

Thesis

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Mohammed Karem Abd El-Azeem

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List of Abbreviations

BF : Breast feeding
CBC : Complete Blood Count
CT : Computed tomography
DFO : Desferrioxamine
DNA : Dioxynucleic Acid
EPO : Erythropoietin
FEP : Free erythrocyte protoporphrin
FL : Femtiiter
Ft : Serum ferritin
G6PD : Glucose 6 phosphate dehydrogenase deficiency
GH : Growth Hormone
HAMP : Hepcidin antimicrobial peptide
HCT : Hematocrit
HFA : Height for age
HGB : hemoglobin
HIV : Human immunodeficiency virus
HO-1 : Hemeoxygenase 1
HR : Heart rate
HUS : Hemolytic uremic syndrome
ID : Iron deficiency
IDA : Iron deficiency anemia
IL-6 : Interleukin-6
Lab : Laboratory
LDH : Lactate dehydrogenase
MCH : Mean Corpuscular Hemoglobin
MCHC : Mean Corpuscular Hemoglobin Concentration
MCV : Mean Corpuscular Volume

List of Abbreviations *(Cont.)*

NH : Neutrophil hypersegmentation
NRBCs : Nucleated RBCs
PCV : Packed cell volume
PedNSS : Pediatric Nutrition Surveillance System
PNH : Paroxysmal nocturnal hemoglobinuria
PRBCs : Packed Red Blood Cells
RBCs : Red Blood Cells
RDW : Red blood cells Distribution Width
Rh : Rhesus factor
RR : Respiratory rate
SD : Standard Deviation
SI : Serum iron
SNAP : Supplemental Nutrition Assistance Program
SPSS : Statistical program for social science
TEMP : Temperature
Tf : Transferrin
TfR : Transferrin receptor
TIBC : Total iron binding capacity
TIBC : Total iron binding capacity
Tr mRNA : Transferring messenger ribonucleic acid
TTP : Thrombotic thrompocytopenic purpura
UIBC : Unsaturated Iron-binding capacity
USA : United State of America
WBCs : White blood cells
WFA : Weight for age
WFH : Weight for length
WHO : World health organization
A : Alpha

β : Beta

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Abstract

Introduction: Iron deficiency (ID) and iron-deficiency anemia (IDA) continue to be of worldwide concern. Among children in the developing world, iron is the most common single-nutrient deficiency. IDA remains a common cause of anemia in young children. In early childhood, bad feeding habits, especially during the weaning period, exacerbate the problem.

Aim of the work: to assess prevalence of iron deficiency anemia among children attending emergency room in pediatric hospital of Ain Shams University and its impact on management and prognosis of the underlying disease.

Methodology: 200 children (114 males and 86 females) with mean of age 1.781±1.245 years, recruited among those attending emergency room. All infants were subjected to full history taking, thorough examination and laboratory investigations including; Hb%, CBC, serum iron and TIBC, then patients were divided into 2 groups; Group(1): non anemic children and Group (2): anemic children.

Results: 128 (64%) were anemic of whom 44 (34.37%) had IDA. There was statistically significant higher incidence of low social class (p=0.02), higher order of birth (p=0.001), higher duration of hospital stay (p=0.000) and days for improvement (p=0.02) in anemic patients compared to non-anemic group. There was statistically significant higher day for fever to improve in anemic patients with pneumonia compared to non-anemic group (p=0.025). There was statistically significant higher duration of hospital stay (p=0.03) and days of improvement (p=0.003) in anemic patients with convulsions compared to non-anemic patients. There was no statistically significant difference between anemic and non-anemic patients regarding duration of hospital stay and days of RD improvement in patients with bronchiolitis.

Conclusion: IDA is the most common cause of anemia among Egyptian children of low socioeconomic standard.

It may be an associated causal factor, especially as the length of hospitalization was generally short, and the patient was probably anemic at the time of admission.

Key words: *IDA, TIBC, anemic children, pneumonia, bronchiolitis, convulsions*

Introduction

Introduction

Anemia is a global public health problem affects more than 30 percent of the world's population. It is generally assumed that 50% of the cases of anemia are due to iron deficiency anemia ***(Glader, 2007)***. A national nutrition survey showed the high prevalence of iron deficiency anemia in Egypt ***(Kahn et al., 2002).***

The most common causes of microcytic hypochromic anemia are iron deficiency and Beta thalassemia. Thalassemia trait is frequently misdiagnosed as iron deficiency anemia because the two are similar hematologically and iron deficiency is much more prevalent ***(Wonke et al., 2007)***. Other rare causes include sideroblastic anemia, anemia of chronic diseases and lead poisoning ***(Yip and Ramakrishnan, 2002)***.

Factors that cause iron deficiency anemia include inadequate iron intake especially those with a history of prolonged breast feeding with delayed weaning, prolonged consumption of large amount of cow's milk and of food not supplemented with iron, periods of rapid growth, those who were low birth weight or born prematurely and loss of iron from bleeding especially from gastro intestinal tract ***(Wright et al., 2004).***

Beta-thalassemia, the most common genetic disorder in Egypt is a major health problem with an estimated carrier rate of 9-10% ***(Hussein et al., 2007).*** As consanguineous marriage is common in most Arabic countries, the incidence of genetic disease is high ***(Weatherall and Clegg, 2001).***

Aim of the Work