ACCURACY OF DIFFERENT MARKERS IN DIAGNOSIS OF IRON DEFICIENCY ANEMIA IN INFANTS AND YOUNG CHILDREN

Thesis

Submitted For Partial Fulfillment Of Master Degree In Pediatrics

By
Asmaa Ramadan Mohamed Fawzy Hassan
(M.B.B.Ch)

Faculty of medicine – Fayoum University

Supervised by

DR. ESAM EL-DEIN GAD EL-RAB AHMED
Assistant Professor of pediatrics
Faculty of medicine – Fayoum University

DR. AL-KASSEM AHMED AL-GAMEEL
Assistant Professor of pediatrics
Faculty of medicine – Fayoum University

PROF. DR. MANAL NIAZI
Professor of clinical pathology
Faculty of medicine – Fayoum University

Faculty of medicine- Fayoum University
2016

Abstract

Background: Iron deficiency is considered the most common nutritional deficiency worldwide and the most significant negative consequence of iron deficiency is iron deficiency anemia (IDA). Current strategy to identify iron deficiency anemia relies on markers involving high costs. **Aim of the study** was to evaluate accuracy of different markers in diagnosis of iron deficiency anemia and to know the most cost benefit wise. **Patient and methods:** The current study had been conducted on 100 children; 68 males and 32 females, from Fayoum university hospital of age groups between six months and three years. Mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), red blood cell distribution width (RDW), serum iron, total iron binding capacity (TIBC), serum ferritin, and serum transferrin were obtained from all participants. Transferrin saturation was calculated. Receiver operator characteristic (ROC) curves were used to assess the accuracy of various RBCs indices & iron parameters.

Results: With respect to serum ferritin, the best predictive cut-off value of MCV, MCH and RDW at the most optimal were 68.1µm3 (ROC curve=0.756), 22.9 Pg (ROC curve=0.813) and 15.7% (ROC curve=0.815), respectively. As regard iron profile, it has been found that the best predictive cut-off value of serum ferritin, iron, TIBC and transferrin saturation at the most optimal were 37.9 µg/dL (ROC curve=0.833), 30.5µg/dl (ROC curve = 0.726), 267µg/dl (ROC curve=0.847) and 10.9 %(ROC curve=0.841) respectively. **Conclusion:** IDA can be predicted among children using complete blood count test. MCV ،MCH and RDW are the iron parameters of complete blood count test, which is a cost effective, easily accessible and could be useful tool in areas with limited resources and a high prevalence of the disease. According to iron profile, the most accurate test for diagnosis IDA is TIBC, transferrin saturation, ferritin then serum iron.

Keywords: Iron deficiency anemia; Infant; MCV; MCH; RDW; Iron; Ferritin ; TIBC; transferrin saturation.