Association between autism and iron deficiency in autistic children in the northern west bank

Alkaissi Aiadh
An-Najah National University, Israel

Background: Iron has an important role in cognitive, behavioral, and motor development. A high prevalence of iron deficiency (ID) has been reported in people with autism. Children with autism are at risk for ID and this condition may increase the severity of psychomotor and behavioral problems, some of which already inherently exist in these children.

Aim: The aim of this study is to investigate the association between autism and iron deficiency in autistic children in the northern West Bank and to identify food selectivity and compare indices of food selectivity among children with autism, children with mental disorders and typically developing children.

Patients and methods: 90 children with an age range of 3 to 13 years participated in a case control study distributed into the study group and two control groups. Thirty children diagnosed with autism according to DSM-IV and ICD-10 criteria served as a study group, 30 children with mental disorders other than autism served as a control group, and 30 typically developing children taken from the public functioned as a second control group. The three groups were matched for age, gender and geographical area. Serum ferritin, hemoglobin, hematocrit, mean corpuscular volume, and red cell distribution width values were measured.

Results: ID was detected in 20% (N=6/30) of autistic children based on Serum ferritin level (SF< 10µ/l), compared with 0% for the two control groups (p=0.0001). Anemia was defined as hemoglobin <110g/l for children under the age of 6 years and hemoglobin <120g/l for children between 6 and 13 years of age. When we analyzed HGB for these six children (children who have low serum ferritin); we found that 66.6% (4/6) of the children (two are pre-school male children (HGB is less than 110g/l), and the other two are one male and one female of school children (HGB is less than 120g/l) have iron deficiency anemia. The results indicated that these differences are for males. We found also that the frequency of low iron intake in these children is associated with feeding difficulties and food selectivity; there was a significant difference between children in the autistic group who chose foods with a red color as a favorite 23% (7/30) compared to the other two control groups: 0%, respectively (p=0.0001). The results demonstrated also a significant difference in the frequency of snacks per day (≥ 4) in autistic children 40% (12/30) compared to both mental disorder 16.7% (n=5/30) (p=0.006) and typically developing children 6.7% (n=2/30) groups (p=0.001).

Conclusion: Results of this study confirmed that there is an association between autism, iron deficiency and anemia. Low levels of serum ferritin in autistic children might be a sign of iron deficiency and an early precursor of iron deficiency anemia. Our findings suggest that food selectivity is more common in children with autism than in typically developing children. These findings suggest that ferritin levels should be measured in children with autism as a part of routine investigation.

aidah@najah.edu