NUTRITIONAL STATUS IN TUNISIAN CHILDREN WITH AUTISM SPECTRUM DISORDES (TUNISIA)

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Background

Autism spectrum disorders is a severe developmental disorder. Children with ASD are reported to have food aversions and inhabitual eating behaviors.

Objectives

The aim of this study was to evaluate the nutritional status in Tunisian children with ASD

Materials and methods

This was a case–control study conducted at the department of child psychiatry. Forty children with ASD diagnosed according to the DSM-5 criteria of the American Psychiatric Association were recruited . Controls included 43 sexe and age-matched randomly selected healthy children of the same socio economic status. We calculated body mass index (BMI). Total protein ,albumin, prealbumin and Inflammatory markers (High Sensitive C-Reactive Protein and orosomucoid) was measured for all subjects.

Results

- 1- Socio-demographic characteristics of the study sample :**
- 2- Comparison of anthropometric parameters between the two groups :**

- The average age of our sample is **4.77** years ± 0.93 (2.5 – 7 years).
- There is a **male predominance**: Sex-ratio = 1.73 .
- The majority of our patients are **urban** = 66% of cases.
- The socio-economic level is mainly **medium** : 73.8 % for children with ASD and 78% of witnesses.

	G 1	G2	p
Weight (Kg)	20,90 $\pm 3,9$	21,47 $\pm 5,53$	0,608
Height (m)	1,11 $\pm 0,1$	1,06 $\pm 0,10$	0,025
BMI (Kg/m ²)	16,82 $\pm 3,18$	19,08 $\pm 3,18$	0,016

3- Comparison of dietary intake :

Daily food intake has been similar in both groups. Daily intake of micro nutrients were lower in children with ASD for Ca, PH, vitamin C, Mg and folate compared to the reference population. Children with ASD had a history of dietary selectivity for carbohydrates and lipids at the expense of the protids in comparison with the control children

4- Comparison of the nutritional profile between the two groups of patients :

Figure: Comparison of the pre-albumin levels between the two groups

	G1	G2	P
Total protides (g/L)	71,24 $\pm 3,6$	70,23 $\pm 5,96$	0,39
Albumin (g/L)	43,32 $\pm 2,75$	43,5 $\pm 3,20$	0,54
Prealbumin (mg/L)	162,5 ± 45	178,8 ± 29	0,04

Discussion

In our study, children with ASD had a significantly lower BMI. Some studies have reported a high prevalence of underweight for these children [1,2]. The hypotheses announced by these authors are the lack of appetite for children with autism, the high level of emotional stress and hyper activity. In contrast to these findings, other studies have reported a high prevalence of overweight and obesity in ASD [3,4]. The patients in our study had a diet selectivity for carbohydrates and lipids at the expense of the protids. The decrease in pre-albumin levels is related to undernutrition in these children. Some authors have shown that the intake of calories, carbohydrates and fats in most children with ASD is similar to controls [5], while other authors have estimated that fat consumption is lower than of witnesses [6]. In our study, micronutrient intakes were lower compared to the reference population. The results in the literature are controversial. Some authors [7] have observed a decrease in calcium and riboflavin intake in children with ASD compared to controls. While others have found significantly higher intakes of calcium, phosphorus and iron for children with this disorder [8].

Conclusion

Low values of serum prealbumin suggest undernutrition or inflammatory syndrome. A small change in nutritional status can be detected early by the prealbumin levels. In this study, we did not notice an increase in High Sensitive C-Reactive Protein and orosomucoid, and therefore the decrease in pre-albumin levels in children with ASD would be related to undernutrition

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