

RELATIONSHIP BETWEEN BODY MASS INDEX (BMI) AND NOCTURNAL ENURESIS IN EGYPTIAN CHILDREN. A MULTICENTRE RETROSPECTIVE STUDY.

Hypothesis / aims of study

Obesity was reported as a significant finding among children with nocturnal enuresis (NE). The purpose of this study is to evaluate the relationship between body mass index (BMI) and nocturnal enuresis in Egyptian children.

Study design, materials and methods

The data of 500 patients (266 male and 234 female) presented with nocturnal enuresis in outpatient clinic between 1 March 2010 and 28 February 2011 at Ain Shams and Tanta University Hospitals were analyzed retrospectively. Patient's age, weight and height were evaluated, BMI was calculated by dividing an individual's weight in kilograms by the square of their height in meters (kg/m²), BMI percentiles were determined based on data from the Egyptian Growth Reference Charts. BMI percentile \geq 95% was defined as obese, BMI percentile $<$ 95% and \geq 85% was defined as overweight, BMI percentile $<$ 85% and \geq 5% was defined as healthy weight and BMI percentile $<$ 5% was defined as underweight. Patients were divided into 2 groups: group (A) monosymptomatic NE ($n = 319$) and group (B) non-monosymptomatic NE ($n = 181$). The data obtained were compared with the general Egyptian pediatric population.

Results

The mean age for the patients was 11.4 ± 3.2 and mean BMI was 19.5 ± 5.4 . From overall patients 31/500 were obese (6.2%), 60/500 were overweight (12%) and 53/500 were underweight (10.6%). Obese and overweight patients were more common among monosymptomatic NE 70/319 (21.9%) than non-monosymptomatic NE group 21/181 (11.6%), while underweight patients were less in monosymptomatic NE 29/319 (9.1%) than non-monosymptomatic NE group 24/181 (13.3%).

Table 1, show patients data mean \pm SD for (age, weight, height, BMI) and their distribution to BMI percentile according to the Egyptian Growth Reference Charts.

BMI Percentile	Patient		Age		weight		Height		BMI	
	N	%	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<5	53	10.6	13.00	2.95	35.00	14.45	1.52	0.19	14.44	2.58
5-10	26	5.2	11.00	2.15	31.50	6.50	1.44	0.09	15.00	1.08
10-25	32	6.4	7.67	2.54	24.67	7.44	1.28	0.17	14.70	0.51
25-50	168	33.6	10.50	2.77	36.29	11.32	1.42	0.17	17.32	2.14
50-75	109	21.8	10.45	2.72	41.09	13.54	1.42	0.19	19.50	2.13
75-85	21	4.2	15.50	2.56	60.50	10.77	1.55	0.09	25.09	1.67
85-90	60	12	12.67	2.15	61.67	13.61	1.55	0.13	25.27	2.38
>95	31	6.2	16.33	1.73	94.00	3.32	1.66	0.05	34.02	1.02
Total	500	100	11.37	3.24	43.64	19.89	1.46	0.18	19.49	5.35

Interpretation of results

Obesity among children with NE was reported with a high incidence 55% for mild obesity and 31% for sever obesity (1), and this incidence was too high in comparison with the results of our study. Incidence of obese and overweight children was 6.2% and 12% respectively, in addition 10.6% of our patients were underweight and this suggest that Egyptian children complaining of NE not necessary to be obese. The results of our study were comparable with the incidence of obesity (7.1%), overweight (13.4%) and underweight (7.3%) among the general pediatric population (2).

Concluding message

The association between obesity as a risk factor or an underlying aetiology for nocturnal enuresis in Egyptian children is not clearly significant in our study. However, larger trials with more patients' number are needed before the final conclusion.

References

1. Erdem E, lin A, Kogan BA and Feustel PJ. (2006). Association of elimination dysfunction and body mass index. Journal of Pediatric urology, 2, 364-367
2. Ismail M. (2005). Diet, Nutrition and Prevention of Chronic Non-Communicable Diseases Survey, phase 1. For the Diet, Nutrition and Prevention of Chronic Non-Communicable Diseases (DNPCNCD) investigation team. Cairo, NNI.

Specify source of funding or grant	No source of funding or grant.
Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Tanta University, Faculty of Medicine, Research ethics committee, Quality assurance unit.
Was the Declaration of Helsinki followed?	Yes

Was informed consent obtained from the patients?

Yes
