Obstructive Sleep Apnea Syndrome (OSAS) in childhood obesity is a more frequent and earlier complication than expected

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Introduction: The prevalence of respiratory problems, such as asthma, obstructive sleep apnea syndrome (OSAS) and obesity hypoventilation syndrome, is higher in obese children and adolescents. OSAS affects 13–59% of obese children and the severity is strongly associated with weight excess. Although overnight pulse-oximetry (PO) can be used for diagnosing OSAS, a complete night polysomnography (PSG), which records peripheral oxygen saturation, heart rate, respiratory airflow and effort during sleep providing information about the sleep stages, is the gold standard for Sleep Disorders of Breathing (SDB) diagnosis.

Aim: This is an observational study to evaluate pulse oximetry (PO) and nocturnal polysomnography (PSG) parameters in obese children with nocturnal snoring (NS) and suspected sleep apnea compared with non-obese children with OSAS (adenotonsillar hypertrophy, gastroesophageal reflux, asthma/rhinitis). Parents of all the subjects enrolled filled out OSAS18 questionnaire for evaluation of the quality of life.

	OBESE (22)		NOT OBESE (45)	
AGE	10,5 (6-14)		4,8 (2 - 12)	
SEX (M,%)	14	63,6%	33	73,3%
z-BMI > 95°p	22	100%	0	0%
ADENOTONSILLAR HYPERTROPHY	19	86,4%	42	93,3%

PSG		OBESE (22)	NOT OBESE (45)	P value
AHI		26,4 (± 31)	10,7 (± 13,2)	0.03
oAHI		20,9 (± 23,8)	10,3 (± 13,1)	0.06
MEAN $SatO_2$	Mean	95,7% (± 2)	96,3% (± 1,9)	
	< 95%	6 (27,3%)	5 (11,1%)	
Nadir $SatO_2$		82% (± 10)	86% (± 10,7)	

PO		OBESE (22)		NOT OBESE (45)		P value
Positive for OSAS		15	68,2%	18	40%	0.02
MOS	1+2	9	40,9%	29	64,4%	
	3+4	13	59,1%	16	35,6%	
ODI	Mean	18,5 (± 25)		11,8 (± 19,1)		
	>3	16	72,7%	19	42,2%	0.02
Mean $SatO_2$	Mean	96,2% (± 1,3)		96,3% (± 2,3)		
	<95%	3	13,6%	3	6,7%	

Conclusions:
1) OSAS is a frequent and early complication in obese children with
2) OSAS is more severe in young children with obesity, as docume
3) The type of desaturations are both obstructive and central.
4) In a hospital setting, no differences were found in sleep quality b
because of the different age of the 2 groups.

		OBESE	NOT OBESE
SLEEP DURATION	Mean	467,6 (± 65,6)	481,5 (± 104)
	< 420 minuti	5 (23,8%)	6 (17,6%)
% REM	Mean	19,7% (± 8,2;)	16,9% (± 8,2)
	< 18%	7 (33,3%)	17 (51,5%)
	≤ 10%	2 (9,5%)	7 (21,2%)
SLEEP EFFICIENCY	Mean	93% (± 2,8;)	86,7% (± 11,4;)
	< 85%	0 (0%)	7 (28%)

Quality of sleep		OBESE	NOT OBESE
Total sleep duration	Mean	467,6 (± 65,6)	481,5 (± 104)
	< 420 min.	5 (23,8%)	6 (17,6%)
% REM	Mean	19,7% (± 8,2)	16,9% (± 8,2)
	< 18%	7 (33,3%)	17 (51,5%)
	≤ 10%	2 (9,5%)	7 (21,2%)
Sleep	Mean	93% (± 2,8)	86,7% (± 11,4)