ARBITRARY CUTOFFS LEAD TO UNDERESTIMATION OF METABOLIC ABNORMALITIES IN OBESE CHILDREN : THE VALUE OF AGE- AND SEX-ADJUSTED NORMATIVE VALUES

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OBJECTIVES

Background:

- The prevalence of obesity and its consequences is a public health problem.
- Metabolic syndrome and insulin resistance are well recognized in adult obesity. Their criteria and prevalence and are still controversial in children.

Objectives:

- To evaluate the prevalence and natural history of clinical and biological parameters of the metabolic syndrome in a pediatric cohort of obese subjects.
- To identify metabolically healthy subjects and the persistence of this phenotype over time.

METHODS

- Prospective longitudinal, observational, single-center study on children managed for obesity.
- Clinical and biological data collection done yearly from 2007. Patients carried between one and seven visits during follow-up with a median of two visits per patient
- Metabolic syndrome parameters expressed in SDS for age and sex, using reference values obtained from an independent representative healthy cohort of children in France, using the the same biological assays.
- Results are expressed as median (IQR)

RESULTS

Metabolic syndrome parameters in obese children at baseline

	AbsValues		SDS for age and sex		% >+2SDS
	M	IQR	M	IQR	
Waist circumference	80 cm	(74 - 86)	+2.8 DS	(2.3 - 3.2)	85%
Fasting plasma glucose	5.10 mmol/L	(4.8 – 5.3)	+1.5 DS	(0.9 - 2)	24%
Triglycerides	0.77 mmol/L	(0,6 - 1)	+0.7 DS	(-0.1 – 1.4)	13%
HDL cholestérol	1.28 mmol/L	(1.13 –1.48)	-0.7 DS	(-1.5 - 0)	11%
Fasting plasma insulin	7.1 mUI/L	(5 - 10)	+ 0.7 DS	(0 - 1.4)	11%

- 533 children and pre-teens enrolled between 2007 and 2015.
- Age from 5 to 13 years at baseline (9.2-10.2)
- BMI +3.8 SDS (3.1-4.3)
  BMI decreased during management from +3.8 SDS to +3.4 SDS during follow up after an average follow-up of 24 months
- Prevalence of metabolic abnormalities: see Table

  Metabolic abnormalities were detected in 90% of children initially and during follow up. Only 10% could be considered metabolically healthy.
  The largest variations in metabolic status over time concerned fasting blood glucose with about 12% of patients changing their metabolic status.

CONCLUSIONS

The prevalence of metabolic abnormalities is higher than expected in obese children and early adolescents when appropriate reference values are used. Metabolically healthy subjects are minority.

Metabolic abnormalities appear broadly stable over time.

Appropriate reference values and reference curves should be used in practice for the evaluation of obese children an adolescents patients.

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