

INSULIN RESPONSE AT STANDARD GLUCOSE LOAD IN CHILDREN WITH NORMAL, LOW AND EXCESSIVE BODY MASS

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62 adolescent males aged 13.56 ± 2.47 were examined with grouping on BMI Z-score: 1 gr. $< -1SD$ (n=6), 2 gr. $+1 SD$ (n=11), 3 gr. $+1.1-2.0 SD$ (n= 14), 4 gr. $+2,1-3.0 SD$ (n=18), 5 gr. $+>3 SD$ (n=13). Standard two hour oral glucose tolerance test (OGTT) was performed with further calculation AUC for glucose and insulin for increments: 0-30 min (AUCgl.0-30; AUCins.0-30), 30-60 min (AUCgl.30-60; AUCins.30-60), 60-120 min (AUCgl.60-120; AUCins.60-120).

Results: Fasting insulin was gradually increasing from group to group as well as HOMA-IR and average insulin concentration during the test ($p < 0.01$ for all). Peak insulin concentration was registered in skinny since at 30 min and in normal weight and overweight at 15 min. Then insulin levels in lean and normal weight started to decrease. Meanwhile in overweight was stable with tendency to grow up. At 120 min Insulin dropped down in all subjects with minimal level in normal body mass. Simultaneously, insulin at 120 min was higher than fasting for 67% in normal BMI, for 156% in overweight, for 100% in obese and for 387% in skinny. Insulin dynamics demonstrates high variability in skinny and overweight together with least in BMI $+ > 3 SD$.

Conclusion: There is a linear dependence of fasting and average insulin concentration on BMI. There is a strongest response in skinny and lean

subjects during the first phase of insulin response and in overweight and obese during the second one. There was no statistical difference at the total AUC ins. It might reflect problems with β -cell function in overweight and adaptive exaggerated response in skinny. It reveals a necessity to stratify subjects with low variability during OGTT and absent decrease of insulin level after 60 min. as risky even despite of absent diabetes and dysglycemia