

Relationship between insulin sensitivity and IGF-I sensitivity in low birth weight prepubertal children

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Background: Insulin-like growth factor-I (IGF-I) and insulin are structurally related proteins with similar receptors and signal transduction systems. **Aim:** We postulate that some low birth weight (LBW) children may have decreased sensitivity to both insulin and IGF-I. **Methods:** We studied 48 prepubertal LBW children aged 7.6 ± 2.4 years. Insulin sensitivity was determined using an oral glucose tolerance test, and IGF-I sensitivity was assessed by determining nocturnal GH concentrations at baseline and after administration of recombinant human IGF-I/IGFBP-3 complex. **Results:** Children were classified into quartiles of insulin sensitivity based on their glucose AUC/insulin AUC index. Children in the lowest quartile of insulin sensitivity exhibited a lower IGF-I sensitivity after administration of the rhIGF-I/rhIGFBP-3 complex compared to children in the highest quartile of insulin sensitivity (percent change in GH AUC: -44.2 ± 5.7 vs. -21.6 ± 6.8 , $p < 0.05$). **Conclusion:** LBW children in the