IGF-IR/ERK content and response to IGF-I and insulin in adipocytes from small for gestational age children

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Background/Aims: The GH-IGF-I axis plays an important role on pre/postnatal growth in humans, and IGF-I regulates cell proliferation, differentiation, and metabolic homeostasis. The adipose tissue has an important function in energy storage, and plays an endocrine role through the production of several hormones and growth factors. There are few studies in humans regarding IGF-I and Insulin receptor signaling in adipocytes, particularly from AGA and SGA children. Methods: We studied 22 healthy prepubertal children (6.1 ± 0.4 years), born at term (11 SGA and 11 AGA), and normal BMI at the time of the study. Primary cell cultures were established from subcutaneous adipose tissue biopsies. Preadipocytes were differentiated and stimulated with IGF-I or insulin and we studied IGF-IR, IR, AKT, and ERK content and phosphorylation. Results: The SGA children were shorter than the AGA children (height SDS -2.14 ± 0.11 vs. 0.02 ± 0.19, p < 0.05). A lower content of IGF-IR, IR, AKT, and ERK was obs