

Sonographic Measurements of Subcutaneous Fetal Fat in Pregnancies Complicated by Gestational Diabetes and in Normal Pregnancies

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Aim. To compare sonographic measurements of fetal fat tissue in pregnancies complicated by gestational diabetes (GD), undergoing either a diet only or a combined diet and insulin treatment, to those obtained in pregnancies with a normal glucose challenge test.

Methods. Forty-five singleton pregnancies complicated by GD but free of any other maternal disease known to affect fetal growth were recruited. GD was diagnosed by a 3-hour OGTT, and treatment was differentiated according to the glycemic profile. GD mothers were stratified into two treatment groups: glycemic profile normalized by diet only treatment (n=16), or by combined diet and insulin treatment (n=29). Fetal biometry and subcutaneous fat tissue thickness of the anterior abdominal wall were sonographically evaluated at the time of diagnosis and every 4 weeks afterwards in both GD and normal glucose challenge test group (n=25).

Results. No differences were found in neonatal outcomes between combined diet and insulin treatment group and normal cases, whereas neonatal weight showed a statistically significant difference between diet only treatment group and normal population. Abdominal circumference was similar in fetuses from GD mothers and normal fetuses, but there was a difference in the fetal fat tissue thickness at the time of diagnosis.

Conclusion. Increased fetal fat tissue thickness in GD at recruitment and its growth rate reduction during an adequate treatment may be a new criterion for direct estimation of fetal metabolic status instead of the traditional indirect evaluation based on maternal glucose concentrations.

Key words: adipose tissue; diabetes, gestational; fetal monitoring; glucose tolerance test; insulin; ultrasonography

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