1,5 Anhydroglucitol, a New Biomarker to Screening Gestational Diabetes in Early Pregnancy.

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The serum level of 1,5 anhydroglucitol (1,5AG) is a biomarker for short-time glycemic control (1-3 weeks). However, the use of 1,5AG in gestational diabetes is controversial. The changes in kidney function (threshold and hemodynamic) during pregnancy were pointed as a limitation for this use of 1,5AG. We investigated the efficiency of 1,5AG use in a case-control study with gestational diabetes (GDM). The study was approved by the Ethics Committee. Pregnant women, classified as healthy (control group, n=200) and with gestational diabetes (GDM, n=200) according to the ADA 2009 criteria. Four gestational periods were selected: (i) 13-23, (ii) 24-28, (iii) 29-32 and (iv) >32 weeks. Controls and GDM groups were matched (n=50 for each period). 1,5AG were measure enzymatically with glycokmark (GlycoMark, Inc.), and no patient showed symptoms of kidney disease (creatinine <1.1 mg/dL). The mean (±SD) levels of 1,5AG (µg/mL) for the control and GDM groups, respectively, for each gestational period were, (i) 21.3±7.9 vs 6.9±3.6, p<0.001; (ii) 10.9±5.4 vs 10.0±5.0, p=0.242; (iii) 13.7±5.0 vs 8.9±4.8, p<0.001, and (iv) 15.6±9.3 vs 10.8±4.5, p=0.006. In early pregnancy (13-23 weeks), the 1,5AG concentration allowed to discriminate GDM patients from healthy subjects (sensibility 87.0% and specificity 94.1%) with a cutoff of ≤10 µg/mL. In later gestational periods, the 1,5AG levels were not clearly different between the two groups. In conclusion, the serum levels of 1,5AG could be used as for GDM screening in early pregnancy (13-23 weeks), increasing the options for biomarkers for the premature stages of GDM.

Keywords: glycemic control, diabetes, gestational diabetes, 1,5AG, screening.
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