

Lipid peroxidation processes in prepubertal girls with type 1 diabetes mellitus



Kolesnikova L., Kolesnikov S., Darenskaya M., Grebenkina L., Gnusina S.



Scientific Centre for Family Health and Human Reproduction Problems, Irkutsk, Russia

Introduction

Type 1 diabetes mellitus (T1DM) is characterized by varying levels of morbidity in different populations and its prevalence increase in the majority of developed countries during the last 30 years. This pathology may affect the tempo and course of pubertal growth and development, onset of menarche and the violation of menstrual function in girls. The aim of this research was to determine the state of lipid peroxidation (LPO) and antioxidant defense system in girls with T1DM of prepubertal age.

Methods

This study enrolled 15 girls of 7-11 years old with T1DM and 15 healthy girls (control) matched by age. Spectrophotometric and fluorometric methods were applied. The state of LPO and antioxidant system was assessed also using the coefficient of oxidative stress that represented the ratio of LPO products to antioxidant defense system activity.

Results

The results of our study showed the increase of conjugated dienes (CDs) by 63% ($p < 0.05$) and thiobarbituric acid reactants (TBARs) by 42% ($p < 0.05$) concentrations in girls with T1DM in comparison to the control group. We demonstrated that GSH concentration in erythrocytes was significantly lower (by 21%) in the girls with T1DM compare to this parameter in control group ($p < 0.05$). The increased coefficient of oxidative stress (1.16) also was observed in this group in comparison to the control group (1.00).

Conclusions

The prepubertal period is characterized by imbalance of state of lipid peroxidation process – antioxidant defense.

References

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