**Objective**

To evaluate the potential role of osteoprotegerin (OPG)/sRANKL system in adolescents with IDDM and the influence of age, sex, metabolic control, diabetes duration and age of IDDM diagnosis on OPG/sRANKL system, cross tertiles of OPG levels.

**Methods**

Serum concentrations of OPG and total sRANKL (tsRANKL) were measured in 60 children (25 boys, 33 girls) with IDDM duration of 5.1±3.9 years (min. 1.0, max. 11.8), age 15.0±1.9 (11.4 – 17.8), age of IDDM diagnosis 9.9±3.9 (2.5 – 17.0) and mean HbA1c level in the last year of 7.8±1.7% (5.1 – 13.6).

Control group consisted of 17 healthy, age and sex matched children. OPG concentration and tsRANKL (free and bound) were measured by ELISA and ELISA commercial kits, respectively.

**Results**

Both serum OPG and tsRANKL and also OPG/tsRANKL ratio were lower in diabetic children, but not in a statistically significant way. OPG concentration in IDDM boys was significantly lower than in the control group. Negative correlation was observed between OPG level and the age of diabetes of diabetes and positive correlation was found with diabetes duration. tsRANKL did not correlate with sex, metabolic control, diabetes duration or age of diagnosis. However, a negative correlation between serum tsRANKL and the age was observed. The OPG/tsRANKL ratio values depend only on the age in IDDM children. Statistical analysis showed that higher level of OPG (third and/or second vs. first tertile) was associated with an earlier age of diagnosis, longer diabetes duration and poor metabolic control.

**Conclusion**

OPG/tsRANKL system may be used as a prediction marker of bone and cardiovascular system status in children and adolescents with IDDM, but precise reference data for children in relation to age, sex and puberty status should be determined first.

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