

# Evaluation of serum selenium concentration and polymorphisms of genes responsible for selenium metabolism in women with endometrial cancer.

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## Abstract

Numerous studies have shown a relationship between low serum selenium levels and an increased risk of developing cancer. The studies on the influence of selenium level on the development of endometrial cancer are not clear. Numerous studies indicate a relationship between the presence of *GPXI* (rs1050450), *DIO2* (rs225014) and *SEPP1* (rs7579) gene polymorphisms and the development of chronic or neoplastic diseases. However, there are no reports on the influence of these polymorphisms on the development of endometrial cancer.

The mean concentration of selenium was lower in patients with endometrial cancer than in healthy controls (60,63 µg/l vs. 78,74 µg/l, respectively). When compared in quartiles a significant association of lower selenium concentration with the incidence of endometrial cancer was recorded. The highest OR was observed in 1st and 2nd quartiles (OR – 17,8, p-value <0,001; medium selenium level 46,95 µg/l, and OR – 5,94; p-value <0,001; medium selenium level 63,60 µg/l, respectively).

There was a 2,06-fold higher risk of developing endometrial cancer in CC homozygotes *DIO2* (rs225014) polymorphism (95%CI 1,20-3,59, p-value = 0,009) compared to TT homozygotes. There was no correlation between the occurrence of *GPXI* (rs1050450) and *SEPP1* (rs7579) polymorphisms and the endometrial cancer.

Low selenium levels may be associated with endometrial cancer. Patients with low selenium levels should be a candidate group requiring appropriate preventive examinations. Carrier of the *DIO2* (rs225014) polymorphism may predispose to the development of endometrial cancer. Further research confirming this relationship is recommended.