Maintaining of precise balance between oxidation and anti-oxidation is important in both physiological and pathological states. Knowledge about this balance may give an idea about the process of the disease. The aim of this study was to investigate dynamic thiol-disulfide homeostasis in patients with low-grade gliomas.

Serial serum samples were collected in 13 patients operated on low-grade gliomas before and after surgery. Control serum samples were obtained from venous cord blood from 13 healthy women during cesarean section. Total thiol, native thiol, and disulfide bond formation were measured and compared with the controls.

Total thiols, native thiols, and disulfide bond formation were significantly elevated in patients before the surgery compared to the controls ($p<0.05$). Even after the surgery, these three parameters were still high in patients, and the differences were significant ($p<0.05$). Although no significant difference was found between patients and controls regarding the ratios of disulfide/total thiol, disulfide/native thiol, and native thiol/total thiol ($p>0.05$), the balance seemed to shift to oxidative side.

Thiol-disulfide homeostasis was disrupted in patients with low-grade gliomas, and oxidation may play a role in the process of this disease. Supplementation with antioxidants before and after surgery may be taken into consideration.