**Aim:** This study was conducted to investigate the histopathological and biochemical effects of propofol and sodium thiopental, which are intravenous anesthetics used in surgical operations on rat liver.

**Material–Method:** There were three study groups each consisting of nine animals: Control (n=9), propofol (n=9) and sodium thiopental (n=9) group. Propofol (20 mg / kg / day) intraperitoneally (ip) and sodium thiopental (60 mg / kg / day, i.p) were administered with one day interval for 20 days.

**Findings:** At the end of the study, liver tissues were collected for histological examination and biochemical analysis. There was a significant increase in MDA level in propofol exposed group was observed, when compared with the controls and this was statistically significant. We found significant damage in histological sections in parallel to biochemical findings. These histological changes were hepatocyte degeneration, vascular congestion and mononuclear cell infiltration and bile duct proliferation in propofol group. and this was statistically significant. MDA levels were significantly increased in sodium thiopental given group. Also, SOD and CAT activities were prominent in propofol and sodium thiopental. So antioxidant defense system consisting in this group with the increase of MDA could not prevent the lipid peroxidative damage. Also, more histological changes like hepatocyte degeneration, vascular congestion and mononuclear cell infiltration in different sites were observed in sodium thiopental and this was statistically significant.

**Results:** As a result, we can say that these intravenous anaesthetic agents may cause dose dependent damage in liver tissue. For this reason, we think that one must take care of the administration duration and dose levels of the anesthetics during surgical operations.

**Key Words:** Propofol, Thiopental sodium, liver, oxidative damage.