Introduction: Cisplatin (CIS) is commonly used as a chemotherapeutic agent however it is associated with numerous side effects such as urinary cytotoxicity. Quercetin (QT) is a naturally occurring flavonoid present in fruits and vegetables. A number of studies have evaluated its biological properties and found it to have potential benefits for human health, including antimicrobial, antiviral, antioxidative, anti-inflammatory, and anti-apoptotic activity.

Aim: The aim of the study is to investigate possible protective effects of QT in cisplatin induced damage in urinary bladder tissues.

Materials and Methods: Male Sprague Dawley rats were used in the study and four experimental groups (250-300 g; n= 8/each group) were formed as: 1- saline applied control, 2- QT applied control, 3- CIS and 4- CIS + QT groups. Following a single dose of CIS (7 mg/kg i.p.), either saline or QT (20 mg/kg, orally) was administered for 21 days. After decapitation of rats, urinary bladder were removed for histopathological and biochemical evaluation. The urinary bladder tissue samples were fixed with 10% neutral buffered formaldehyde and processed for routine paraffin embedding. Hematoxylin and Eosin stained sections were evaluated semiquantitatively. In order to examine oxidative tissue injury, 8-hydroxy-2-deoxyguanosine (8-OHdG), malondialdehyde (MDA) and glutathione (GSH) levels, and superoxide dismutase (SOD) and caspase 3 activities were analyzed biochemically. Data were analyzed statistically.

Results: Urothelial damage was increased in CIS induced rats and decreased with QT treatment. In the CIS treated group, increase in 8-OHdG and MDA levels and caspase 3 activity and decrease in GSH level and SOD activity were also reversed by QT treatment.

Conclusion: According to the results, quercetin exerts beneficial effects against cisplatin induced oxidative damage through its antioxidant and antiapoptotic effects.