



## The Protective Effect of Melatonin and Agomelatin against Cisplatin-Induced Nephrotoxicity and Oxidative Stress in the Rat Kidney

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**SUMMARY.** Cisplatin is used to treat various types of cancers. Its use is limited, however, due to nephrotoxicity, which may result from free radical damage. Evidence exists that melatonin reduces oxidative stress-induced damage. This study investigated the protective effect of agomelatin, a melatonin receptor agonist, against cisplatin-induced nephrotoxicity and oxidative stress in the rat kidney. Groups of rats were given cisplatin with or without agomelatin or melatonin, or distilled water for 14 days. MDA, tGSH, MPO and 8-OH Gua levels were measured to determine oxidative and DNA damage in renal tissue. Levels of MDA, MPO and 8-OH Gua were lower in the Mel+Cis and Ago+Cis groups than in the Cis group ( $P < 0.001$ ,  $P < 0.001$ , and  $P < 0.05$ , respectively). The tGSH level in the Mel+Cis group was higher than that in the Cis group ( $P < 0.001$ ). Agomelatin and melatonin thus reduced cisplatin-induced oxidative damage and DNA damage in the rat kidney. This suggests that melatonin may be effective in preventing cisplatin nephrotoxicity.

**KEY WORDS:** Cisplatin, Nephrotoxicity, Melatonin, Agomelatin, Oxidative stress, Rat.

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