The aim of this study was to assess the cadmium (Cd) toxicity on renal nitric oxide synthase (NOS) isoenzymes. The study was carried out on 18 inbred male (Cd group: 10 and control group: 8) Wistar rats. Cd group received drinking water containing 15 mg/L Cd for 30 days; and at the end of the 30 days, plasma Cd was analysed. One kidney was snap frozen to assess the endothelial NOS (eNOS), inducible NOS (iNOS) and neuronal NOS (nNOS) expressions by Western blot analyses, and the other kidney was preserved for histopathological examination. Plasma Cd levels were significantly elevated in the Cd group. The Western blot analyses found higher levels of eNOS, iNOS and nNOS in the Cd group but only eNOS and nNOS levels were statistically significant. There was no difference in pathological assessment of the renal tissues. Cd toxicity increases NOS isoenzyme levels and may affect renal physiology.