Abstract

INTRODUCTION: Paraquat is a commonly used highly toxic herbicide. Despite many studies on detoxification of paraquat, an efficient and safe antidote has not been introduced for toxic cases in human being. The aim of this study was to investigate the effect of ellagic acid (EA) on paraquat-induced kidney hazards in rats.

MATERIALS AND METHODS: Sixty rats were randomly assigned as controls and 5 treatment groups (n = 10 each) receiving EA only, paraquat at doses of 15 mg/kg and 45 mg/kg, and paraquat at the same doses plus EA. Paraquat was intraperitoneally injected and the EA was orally given. Kidney tissues were stained with hematoxylin-eosin for histopathologic investigation.

RESULTS: Pathologic scoring showed that paraquat at the higher dose was associated with higher scores than the in the controls, EA group, and the high-dose paraquat group with EA treatment (P < .001 for all comparisons). It was noted that paraquat caused a serious damage in the kidney and the EA treatment significantly reduced the extent of the damage.

CONCLUSIONS: This study showed the protective effects of EA against paraquat-induced nephrotoxicity histologically. Ellagic acid provided significant improvement in glomerular and tubular structure.