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**Study on the protective effect of rabbit serum paraoxonase-1 on the renal injury induced by dichlorvos**

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**Objective:** To assess the protective effect of rabbit serum paraoxonase-1 (PON-1) on renal injury induced by dichlorvos in rats.

**Methods:** Totally 30 healthy S-D rats were randomly divided into 5 groups: control group (group A, n=6), exposure group (group B, n=6), PON-1 pretreatment group (group C, n=6), traditional atropine, pralidoxime treatment group (group D, n=6) and combination therapy group (group E, n=6). The rats of group A were injected with normal saline that is the same volume as dichlorvos into the abdominal cavity. The rats of group B, C, D, E received 9 mg/kg dichlorvos. The rats of group C, E were injected PON-1 4500 units/kg in the tails and dichlorvos was given half an hour later. Rats in group D and E were then administered 45 mg/kg iodoprofen and 10 mg/kg atropine by intraperitoneal injection. Serum creatinine (Cr) was measured by picric acid colorimetry. Serum Cys-C, KIM-1 and NAG in urine were determined by ELISA. Ultrastructural changes in the rats were examined by light microscopy. The differences between the groups were compared.

**Results:** The indexes were compared among the five groups; creatinine index in infect group was higher than the other groups and the difference was statistically significant ( $P < 0.05$ ). The levels of Cys-C, KIM-1 and NAG in group B and group D were significantly higher than those in group A ( $P < 0.01$ ). But group C and E had no significant difference to group A. There were no significant differences between group B and D. In group B, renal inflammatory cells in rats were infiltrated extensively, the cells were congested and edematous, the lumen was obliterated and the border of the brush disappeared. No clear tubular structures were found in group B; but group D showed edema, inflammatory cell infiltration. Toxic group has been reduced, we can see a clear structure of the tube, the lumen was not completely occluded, and the distal convoluted tubule lesions were the most serious. Group C, and E only showed mild congestion and edema, with no significant cell degeneration and necrosis. In group A, the structure of renal tubular epithelium was clear and there was no brush-shaped margin, and no tubular or necrotic cell debris in the lumen.

**Conclusion:** Rabbit serum PON-1 has protective effect on rat kidney injury caused by dichlorvos.