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Clinical and Toxico-Pathological Parameters for Deoxynivalenol Intoxication in B6C3F1 Mice

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Deoxynivalenol (DON) is a common foodborne mycotoxin and induces systemic health problems for loss of appetite, emesis and diarrhea. Reliable diagnosis parameters for DON intoxication are needed to prevent deep health impact. We investigated the changes of body weight, consumption of feed and water, organ weights, hematological values, serum biochemical values, hormone content, blood coagulation factors, clinical signs and toxico-pathological findings in B6C3F1 male mouse after the oral administration of DON (0.83, 2.5 and 7.5mg/kg) for 8 days. Body weight gain was significantly decreased with reduction of feed and water consumption at high dose of DON. Relative organ weights of thymus, seminal vesicle/prostate and testes were dose dependently reduced but those of liver and left adrenal gland were increased with dose dependency. In hematological values, the numbers of WBC and platelets and hemoglobin content was reduced with decreased neutrophil and monocytes by 7.5mg/kg DON. Prothrombin time (PT) and activated partial thromboplastin time were delayed in a dose-dependent manner and the content of fibrinogen was elevated at high dose of DON. Serum total protein, globulin, BUN, cholesterol and testosterone were reduced but total bilirubin and albumin/globulin ratio increased. The enzyme activity of alkaline phosphatase was decreased while, that of alanine aminotransferase was elevated. Anorexia, ataxia, fur crudness and lack of vigor were observed at high dose DON group. As for toxico-pathological findings, atrophy of thymus, seminal vesicle/prostate and testes and submucosal edema and ulceration in stomach were observed. In conclusion, these clinical and toxico-patholgical parameters obtained in the present studies can be used for diagnosis of DON-mycotoxicosis, especially, low WBC, platelets, protein, BUN and testosterone and delayed prothrobin time can be available as for sensitive diagnostic parameters.

Keyword: Deoxynivalenol, Clinical parameters, Toxico-pathological parameters, Mycotoxicosis