REACTION OF DOGS TO LARGE SUBCUTANEOUS DOSES OF CHITOSAN

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Two hundred mg/kg chitosan was injected subcutaneously into 6 mongrel dogs. Three dogs were observed every 2 hours for 24 hours (short-term group). The other 3 dogs were observed until death (long-term group). All dogs were clinically and pathologically examined to investigate the pathophysiology of lung hemorrhage. The following results were obtained;

1. All dogs became anorectic and depressed. They showed considerable dyspnea and increased respiratory rates. The tunica conjunctiva and the palpebra III of their eyes were congested and edematous. The long-term group dogs died at 113, 130, and 160 hours.

2. The radiographic examinations of the long-term group showed opacity of the lungs, dilation of the pulmonary artery, and air broncogram. There were signs of diffuse lung disease.

3. In the short-term group, the WBC differential counts showed a decrease in neutrophils. At 3–5 hours post-injection, a continuous increase in the neutrophil count was observed above the pre-injection value, the highest values being at 11 hours post-injection. The long-term group showed a gradual decrease in neutrophils up to 72-hours post-injection, and an increase thereafter.

4. Protein electrophoresis showed an increase in α-globulins at 36 hours leading to a decrease in the A/G ratio. The serum chemistry profiles showed a transient increase in ALT levels at 48 hours post-injection, followed by a decrease to the value before the injection. Two dogs in the long-term group showed a continuous increase in AST and CK levels while all three showed the same continuous increases in ALP and LDH.

5. Lipid peroxide in serum increased in only 1 dog of the long-term group.

6. Gross and histopathologic examinations of the lungs showed polymorphonuclear cell infiltration and alveolar hemorrhage in the short-term group. The long-term group showed hemorrhage, chronic inflammatory changes, fibrinogenesis, and severe polymorphonuclear cell and macrophage infiltrations of the alveoli and alveolar walls.