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Experimental evaluation of fumonisin B1 and PRRS virus in pigs. Biochemical parameters and histopathological lesions.

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Fumonisins have been associated with certain diseases in animals such as equine leukoencephalomalacia (LEME) and porcine pulmonary edema (PPE). Porcine reproductive and respiratory syndrome (PRRS) has economically affected the swine industry nationally and internationally. The association of PRRS with viral and bacterial outbreaks in pig farms has been reported in the literature; however, the effect of mycotoxins on disease outbreaks needs to be explored. In this study, 25 recently weaned pigs of 22-36 days of age, weighing from 4.17 to 7.6 kg, hybrids, of both sexes, from a PRRS-free farm, were used. They were distributed into 5 groups: Group A: Negative control, Group B: Intoxicated with 12ppm of Fumonisin B1 (FB1) from day 0 (beginning of the experiment), Group C: Inoculated with PRRS virus (vPRRS) on day 8, Group D: Inoculated with vPRRS on day 0 and intoxicated with 12ppm of FB1 from day 0, Group E: Intoxicated with 12ppm of FB1 from day 0 and inoculated with vPRRS on day 8. Blood samples were taken on days: 0 , 8.16, to determine the biochemical parameters. For the histological study, fragments of lung, liver, and kidney tissue were taken and fixed in 10% buffered formalin for processing. Staining with hematoxylin and eosin was performed. It can be observed that AST activity is different from that observed in ALT, on the contrary, GGT reacts more slowly and this activity occurred without showing pathological changes, which suggests the beginning of a lesion. Increased cholesterol levels are indicative of toxicosis due to the presence of FB1. In this study, with a low dose of 12ppm of FB1 and short exposure time, the macroscopic pathological changes in the lung were mild to moderate, but histopathological changes did occur in the lung, liver and kidney. On the other hand, in this study, the lesions observed at the histological level in the kidney in groups B, D and E, are suggestive of toxic processes, of which there are no previous reports in pigs.