

Gout Induced by Intoxication of Sodium Bicarbonate in Korean Native Broilers

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Gout is a metabolic disorder that results in hyperuricemia and the deposition of positively birefringent monosodium urate crystals in various parts of the body. Intoxication of sodium bicarbonate (SBC) for 35 days in Korean native broilers was investigated. Sixty birds, aged 2 weeks, divided in five groups were exposed to excess SBC: 2g/l (group A), 7.5g/l (group B), 20g/l (group C), 40g/l (group D). Toxopathologic examination of all exposed birds revealed the manifestation of visceral and articular gout in group C, while birds of group D showed acute kidney damage with manifestation of excessive visceral gout. Dose dependent increments in erythrocytic count, hematocrit values, and hemoglobin levels of the exposed birds were observed. Hypernatremia, hyperuricemia, hypokalemia and hypochloremia were common findings among exposed birds. These findings provide a pathophysiological link that SBC intoxication may support hyperuricemia, which is an independent risk factor for gout and other renal dysfunctions. Further study is required to delineate the effect of lowering uric acid on progression of gout and other renal diseases.

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