Metabolism of Ammonium Acetate In Various Animals

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Nitrogenous wastes are handled differently among animals. The major portion is excreted as urea in mammals, and the products of purine catabolism are excreted as uric acid in man and allantoin in most mammals. Birds excrete most of their nitrogenous wastes as uric acid.

We have explored the ammonium acetate tolerance of the chicken, cormorant (with the cooperation of Dr. Schmidt-Neilsen), the rabbit, and the dog-fish (with the cooperation of Dr. Burger). The dosage producing death in about 30 minutes by the intravenous route is surprisingly similar for these animals, ranging from 0.08 meq/kg/minute for the rabbit, 0.20 meq/kg/minute for the chicken, 0.30 for the cormorant and 0.40 for the dog-fish. These animals all convulsed before dying. By infusion into the hepatic portal, the rabbit and the cormorant tolerated about twice the intravenous rate of infusion for 30 minutes. The relationship of the rate of infusion of ammonium acetate to tolerance by various routes of administration will be worked out in more detail.

Another aspect of this study is based on the fact that the bird presumably converts its excess ammonia largely into uric acid, and it may be possible to markedly increase purine synthesis by infusing or feeding the ammonium acetate. This may provide an important system for study, since antimetabolites which interfere with the *de novo* purine synthesis, such as DON, azaserine, or the folic acid antagonists, may cause blocks in the pathways of uric acid synthesis with the appearance of abnormal metabolites in the urine. The young cormorant produces about 7,000 mg. of uric acid/kg/day which is about 10 times that produced by man (the actual production in man is in the range of 10 to 20 mg/kg/day). The effect of feeding or infusing ammonia or glycine on uric acid production will be studied.

Studies of Trimethylamine Oxide Excretion In The Dogfish. II. The Maintenance of Trimethylamine Oxide (TMAO) Plasma Levels In Dogfish (*Squalus acanthias*) in Captivity.

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Little is known about the origin of TMAO in the dogfish. Elasmobranchs in general have relatively high plasma and tissue con-