Metabolic, Nutritional, Iatrogenic, and Artifactual Sources of Urinary Organic Acids: A Comprehensive Table

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Abstract

Background: The determination of organic acids and glycine conjugates in urine is key for the diagnosis and follow-up of several inborn errors of metabolism (IEM). However, clinical interpretations may still be hindered by ambiguity in the sources of some urinary organic acids and acylglycines as well as in the relationship between their excretion and IEM.

Approach: Relevant data have been compiled from major books and references on the topic and by exhaustive bibliographic searches through the Medline and Current Contents databases.

Content: A comprehensive table has been designed according to organic acids and conjugates. This table is intended to assist in the interpretation of organic acid profiles because, in addition to IEM, it also refers to other pathologic causes and to physiologic, nutritional, iatrogenic, and artifactual sources. Some preanalytical issues, including possible misinterpretations, are reviewed with regard to IEM.

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Summary. The application of organic acids and their salts to diets for pigs has been studied extensively. They have proved especially effective in maintaining growth performance since the ban on antibiotic growth promoters came into effect in Europe in 2006. Numerous trials have demonstrated their mode and magnitude of action and have established effective doses for piglets, fattening pigs and sows. The use of formic acid and its double potassium salt in particular have been the subject of intense investigation, with the result that we now know its dose-dependent effect on growth performance a