COMPARATIVE GASTROENTEROLOGY

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Résumé of: Keeling JW, Lamabadusuriya SP, and Harries JT: **The Effects of Pure and Micellar Solutions of Different Bile Salts on Mucosal Morphology in Rat Jejunum *in Vivo***: *J Pathol* 118:157-164, 1976

The effects of pure and micellar solutions of different bile salts on the mucosal morphology of the rat jejunum were investigated using a closed-loop technique. Fasting male Wistar rats weighing 250-300 g were anesthetized and a 20-30-cm proximal jejunal loop prepared; 2-3 ml of the test solution was instilled into the loop and the abdominal cavity closed. Temperature was maintained at 37° C, and after a 25-min period the animal was killed and the jejunal loop removed. The jejunal segment was removed with minimal handling, opened longitudinally along the antimesenteric border, pinned out on cork without stretching (mucosal surface upwards), and fixed in a large volume of buffered formalin. After adequate fixation, longitudinal blocks were taken so that the whole length of the jejunum was examined. After routine embedding, sections were stained with hematoxylin and eosin and periodic acid Schiff with a hematoxylin nuclear stain. The surface-to-volume ratio was determined at several sites in each of the jejunal loops; the significance of differences between mean values was assessed by the Student's *t* test. The bile salts were used in isotonic phosphate-buffered solution containing potassium chloride and glucose. Instillation of deoxycholate in concentrations of 1, 2.5, and 5 mM produced progressive reduction in the surface-to-volume ratio; in addition, deoxycholate at 2.5 and 5 mM concentrations produced morphological abnormalities. Solutions of cholate, taurodeoxycholate, taurocholate, glycochenodeoxycholate, and glycohyodeoxycholate produced no abnormalities at 5 mM concentration; taurocholate at 20 mM was without effect. Mucosal abnormalities produced by 2.5 mM deoxycholate were not influenced by mixing with 20 mM taurocholate, but the addition of 10 mM oleic acid to this mixture provided complete protection against the damage produced by deoxycholate. Fusidic acid, an anionic dehydroxy steroid antibiotic, produced mucosal damage at 5 mM concentration.

These observations indicate a molecular specificity

for bile salt-induced mucosal damage which is dependent not only on intraluminal concentration but also on the relative concentrations of conjugated bile salts and lipids present in the intestinal lumen.

Résumé of: England JJ, Frye CS, and Enright EA: **Negative Contrast Electron Microscopic Diagnosis of Viruses of Neonatal Calf Diarrhea**. *Cornell Vet* 66:172-182, 1976

A comparison of the efficacy of viral isolation, fluorescent antibody testing, and negative contrast electron microscopy (NCEM) for the diagnosis of viruses associated with neonatal calf diarrhea (NCD) revealed that NCEM was the most sensitive as well as rapid technique. There was an 81% agreement in results between the techniques, and all but one disagreement resulted from the demonstration of virus by NCEM while the other methods were negative. In addition, mixed viral infections were demonstrated more often by NCEM than by other methods.

The viruses identified in NCD were reovirus-like (12%), coronavirus-like (20%), and mixed virus infections (9%). The mixed virus infections were reo- and corona-like in 6 of 8 cases, corona-like and bovine virus diarrhea (BVD) in 1 of 8 cases, and corona-like and picorna-like (or parvovirus-like) in 1 of 8 cases.

Reo-(rota-)viruses and coronaviruses have been shown to induce neonatal calf diarrhea, and the viruses have also been associated with neonatal diarrheas in other animals, including man. The significance of the picorna- or parvoviruses in NCD have only been implied by association or with certain experimental studies; BVD has not been proven to cause neonatal diarrheas. The NCEM has become, in our hands, a very useful and sensitive technique for diagnosis of virus associated with neonatal diarrheas. Of special importance is the relative ease with which mixed viral populations can be demonstrated; this latter point is especially significant since mixed viral infections are often difficult to diagnose.