Defective IgA response and atopy. B. Taylor, J. F. Soothill, A. P. Norman, C. R. Stokes, and M. W. Turner. The Hospital for Sick Children, Great Ormond Street, and Department of Immunology, Institute of Child Health, London.

A deficiency of immunoglobulin A at age 3 months has been found to be associated with atopy (positive prick skin tests and/or eczema) during the first year of life in infants born to parents with atopic diseases. This deficiency of total serum IgA is transient, mean levels in the atopic infants reaching those found in the nonatopic infants at age 6 months. However, a qualitatively poor IgA response may persist. Such a defective IgA response (to the house dust mite *Dermatophagoides farinae* and to grass pollen during the pollen season) has been identified in the atopic parents of the children studied. Those individuals with positive prick skin tests had significantly less specific IgA antibody than did those who were skin test negative.

Preliminary studies of a rate-limiting enzymatic step in absorption of vitamin E esters. D. P. R. Muller, J. A. Manning, and J. T. Harries. Institute of Child Health, London.

Vitamin E deficiency is common in a wide variety of malabsorptive states, and very low serum concentrations of this vitamin are found in children with obstructive jaundice. In these patients attempts to correct the deficiency state with very large oral doses of a water miscible preparation of vitamin E acetate are generally unsuccessful (Harries and Muller, 1971), suggesting that bile salts may play an important role in absorption in addition to their known solubilizing properties. Luminal hydrolysis of vitamin E esters, as well as other fat soluble vitamin esters, is a rate-limiting step in their absorption (Gallo-Torres, 1970), but no previous studies on the hydrolytic enzymes involved have been reported. This paper presents preliminary studies on the partial purification and characterization of the hydrolytic enzymes separated from human duodenal juice.

Separation was achieved by gel filtration and the principal hydrolytic enzyme was found to be carboxylic ester hydrolase which only showed activity when the substrate was presented in a micellar or water miscible form, and when bile salts were present as cofactors. In 1 patient with congenital pancreatic hypoplasia who had serum vitamin E deficiency, hydrolytic activity could not be detected in the duodenal juice. These observations suggest (a) that the pancreas is an important source of the principal hydrolytic enzyme, and (b) that the malabsorption of vitamin E in obstructive jaundice results from the reduced intraluminal concentration of bile salts which are necessary not only for solubilization, but also as specific cofactors for the hydrolase. The therapeutic implications of our findings may be important not only for vitamin E esters but also for esterified preparations of other fat soluble vitamins.

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Characteristics of intact lactose transport in the jejunum. J. Oyesiku, D. P. R. Muller, and J. T. Harries. Institute of Child Health, London.

The jejunal transport of L-amino acids and certain monosaccharides (e.g. glucose and galactose) is carrier-mediated, sodium- and energy-dependent. Recent work has shown that dipeptide transport exhibits similar characteristics and these findings may have important nutritional implications. The characteristics, however, of intact disaccharide transport have not been clearly defined. In this paper we report on the magnitude and the kinetics of intact lactose absorption in the everted sac preparation of the rat jejunum.

The following results were obtained. (1) When varying concentrations of lactose were presented to the mucosa, 5–10 %was absorbed as the intact molecule. (2) There was a direct linear relation between concentration of lactose and rate of absorption up to the maximum concentration of lactose tested (150 mmol/l). (3) Ouabain, a metabolic inhibitor, did not affect rates of transport. (4) Phlorhizin, a competitive inhibitor of sodium-coupled solute transport, had no effect on transport. (5) The ratio of serosal to mucosal lactose concentrations never exceeded unity.

These results indicate that jejunal transport of intact lactose occurs by a process of simple passive diffusion which is independent of sodium, and that transport processes involved in the absorption of intact disaccharides show fundamental differences to those participating in absorption of dipeptides. Lactosuria, which is frequently seen in paediatric gastrointestinal disease, may thus result from reduced mucosal lactose activity leading to increased intraluminal concentrations of lactose and subsequent absorption of lactose by simple passive diffusion.