Letters to the editor


Dr Isaacs comments:
I certainly agree with Professor Dodge and Dr Bagher that milk lipids may provide important protective effects. Further, I find their observation that alterations in the medium chain fatty acid composition of mouse milk may reduce the severity of infection from rotavirus, a non-enveloped virus, extremely interesting. We, of course, did not determine the effect of the stomach contents of infants fed the various formulas on non-enveloped viruses. Rather, our statement that milk fatty acids and monoglycerides have antiviral activity against enveloped viruses but not non-enveloped viruses was based upon the results of a number of studies by us and others showing that only enveloped viruses are inactivated by purified lipid.

In the early studies of Welsh et al. enveloped Semliki Forest virus and herpes simplex virus type 1 (HSV-1) were inactivated by milk lipids but enterovirus coxsackie B4, a non-enveloped virus, was not.1 In addition, we found that human milk inactivated the enveloped measles virus, vesicular stomatitis virus and HSV-1 but not the non-enveloped vaccinia virus and poliovirus.2 Milk lipids also have been shown to inactivate dengue virus1 and mouse mammary tumour viruses; these are both enveloped viruses.

In vitro studies it has been found that purified free fatty acids and their derivatives inactivated the enveloped Sendai virus, Newcastle disease virus, influenza A virus, Sindbis virus, West Nile virus, HSV-1, and a number of enveloped bacteriophages but not the non-enveloped SV40, polio or encephalomyocarditis viruses (ECMV).2,3 An antiviral effect appeared to be due to the destruction of viral envelopes.5 These multiple findings suggest that the apparent protective effect of milk lipids against rotavirus infection observed by Dodge and Bagher may be due to distinct inactivation of the non-enveloped rotavirus. However, milk fatty acids may prevent the binding of rotavirus and other non-enveloped viruses to receptors or interfere with viral uncoating. These suggestions are supported by the observations of JFE Newman (Institute for Virology, Sandringham, South Africa), reported at the recent VIIIth International Congress of Virology (Berlin, 1990), that fatty acids with chain lengths of 12-15 prevent uncoating of some non-enveloped viruses, for example, bovine enterovirus and ECMV, but not others, for example, poliovirus type 1, coxsackievirus A9, and human rhinovirus 18 and 14. It would, therefore, be interesting to see the results of an in vitro study examining the effects of medium chain fatty acids found in mouse milk on rotavirus infectivity.


Fluorescein dilaurate test of exocrine pancreatic function in cystic fibrosis

SIR,—I read with interest the paper by Drs Dalzell and Heaf,1 particularly as we had a very similar study published in the Archives of Diseases in Children four years ago (with no reference was made).2 In both studies the index cases and controls were similar in age and number, but we prescribed double the dose of fluorescein dilaurate than did Dalzell and Heaf. Our study also demonstrated significantly different fluorescein dilaurate excretion ratios between patients with cystic fibrosis and normal subjects, with the ratios being significantly reduced in patients with cystic fibrosis (p<0.01). An additional component to our study was to compare the fluorescein dilaurate test with faecal chymotrypsin estimation. We found a positive correlation between the two tests (R=0.69, p<0.02).

Although the fluorescein dilaurate test appears to detect exocrine pancreatic insufficiency, in practice it is of limited value as it is in capsule form and not suitable for the age group in which the presentation of cystic fibrosis is most prevalent. We did explore the possibility of the test being used to titrate pancreatic supplement administration. If cholesteryl ester hydrolase is responsible for liberating the fluorescein from fluorescein dilaurate, it was incorporated into a pancreatic enzyme supplement, it may be possible to use the fluorescein dilaurate test to determine the most effective dosage of pancreatic enzyme for individual patients. Unfortunately this enzyme does not appear to be present in any of the commercially available preparations.

Hospital admission--a missed opportunity to immunise.

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