Serological evidence of herpes simplex virus infection in atopic eczema

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SUMMARY Twenty three of 113 patients (20%) with atopic eczema had neutralising antibodies to herpes simplex virus compared with 34 of 113 matched controls (30%), an insignificant difference. This suggests that children with atopic eczema are no more likely to acquire herpes simplex infection than normal children.

While patients with atopic eczema are notoriously susceptible to severe skin infections with the herpes simplex virus,¹ it is not clear whether they are more prone to herpes simplex infection than children of the same age without atopic eczema. We therefore looked for serological evidence of herpes simplex infection in a group of children with atopic eczema and compared the seropositivity rate at different ages with control children of the same age and sex admitted to hospital.

Patients and methods

Patients with atopic eczema from the north west of England who attended the department of child health at our hospital were studied. Blood was routinely taken at the first visit from those most severely affected to exclude immune deficiency and to estimate the serum IgE concentration. Serum samples from 121 consecutive patients (81 boys and 40 girls) collected between January 1982 and July 1984 were available for study. No special enquiries were made about a previous history suggestive of herpes simplex infection, but a further five patients

from whom blood was taken specifically because of herpes simplex infection were excluded.

These patients with atopic eczema were matched against children of the same age and sex from the catchment area of the North Manchester Regional Virus Laboratory, who were referred to hospital during the study period and from whom blood was taken to exclude virus infection. The request cards accompanying the blood specimens were examined, and if eczema, herpes simplex, or malignant disease were mentioned the specimen was excluded.

Complement dependent serum neutralising antibodies to herpes simplex virus type 1 (strain VR₃) were detected by a modification of the microneutralisation test of Pauls and Dowdle.² Heat inactivated serum samples were tested in quadruplicate at dilutions of 1:5 and 1:10. Any serum that contained neutralising antibodies at a dilution of 1:5 was regarded as seropositive.

Results

The results are summarised in the Table. When findings in children aged 6 months or less were excluded (as their antibodies were probably maternal in origin) 23 of the 113 patients (20%) had antibodies to herpes simplex virus compared with 34 of the 113 controls (30%). The difference between the two groups was insignificant ($\chi^2=2.34$, $p=0.12$). Patients over the age of 6 months showed a progressive increase in the incidence of antibodies to the virus with age, whereas the increasing incidence with age was less consistent in the control group.

Table *Neutralising herpes simplex virus antibodies in children with atopic eczema and control children*

Age	Patients				Controls			
	Boys	Girls	Total	(%)	Boys	Girls	Total	(%)
<7 months	0/4	3/4	3/8	(37)	4/4	1/4	5/8	(62)
7-23 months	1/25	0/10	1/35	(3)	4/25	4/10	8/35	(23)
2-4 years	7/30	3/16	10/46	(22)	6/30	10/16	16/46	(35)
5-14 years	10/22	2/10	12/32	(37)	5/22	5/10	10/32	(31)
Total*	18/77	5/36	23/113	(20)	15/77	19/36	34/113	(30)

*Not including subjects under 7 months (see text).

Discussion

As in any hospital based study the patients in this report were selected because their eczema was either unusually severe or particularly refractory to treatment. Such patients are possibly more susceptible to herpes simplex infection than children with milder eczema. The control group was also imperfect in that the controls were not drawn from exactly the same geographical area as the patients, they were not matched for social class, and some of them possibly had eczema.

The results showed that there was no significant difference between the overall herpes simplex seropositivity rates of the two groups, which were similar to those reported for Edinburgh children in 1967.³ Our findings suggest that children with atopic eczema are no more likely to acquire herpes simplex infection than normal children. The severity of initial herpes simplex infections in some children with atopic eczema, combined with troublesome recurrent herpes infections in others, may give rise to a false clinical impression of a greater incidence of infection. Our results do not indicate what proportion of initial herpes simplex infections were sub-clinical, skin infection, or gingivostomatitis. We have been unable to produce serological evidence to confirm the claim that children with atopic eczema

are more often infected with the virus than normal children,⁴ and the general claim that these children are more susceptible to viral infections⁵ requires further substantiation.

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Carbon monoxide concentrations in infant deaths

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SUMMARY Carboxyhaemoglobin measured in 50 infant deaths showed no significant difference between home and hospital deaths nor between explained and unexplained deaths. Carbon monoxide toxicity is unlikely to have an important role in the pathogenesis of sudden infant deaths. The generally low carboxyhaemoglobin concentrations are probably due to endogenous production.

Carbon monoxide poisoning as a factor in the pathogenesis of sudden infant death has been questioned.¹ Previous studies have been limited to North America,^{2,3} and carboxyhaemoglobin values

for infant deaths in the United Kingdom seem to be unavailable.

Patients and methods

A consecutive series of 50 infants who died in South Yorkshire aged 1 week to 2 years was studied between January and November 1985. There were 12 hospital deaths with ascertainable cause (group A), 11 explained deaths at home (group B), and 27 unexplained deaths at home (group C). The boy to girl ratios in groups A, B, and C were 4:8, 4:7, and 17:10, respectively. In group A the duration of admission to hospital varied from one day to one year.