Passive Immunization Against Chicken-pox

Passive immunization by the injection of preformed antibody is practised against a variety of virus diseases. Two kinds of preparation are used—firstly, human normal immunoglobulin, derived from normal donors, and, secondly, human specific immunoglobulin, derived from convalescent donors, which contains increased amounts of antibody against a specified disease.[1] Human normal immunoglobulin is available from blood transfusion centres in Britain, but human specific immunoglobulin is in very limited supply. Chicken-pox is one of the mildest of the childhood fevers, and in most cases there is little reason to seek a means of immunization against it. But it can occasionally be a severe and even fatal infection, so that passive immunization may have a useful—if occasional—role against it as well as against the other virus diseases for which this form of prophylaxis is more often used.

Passive immunization with human normal immunoglobulin modifies but does not prevent an attack of chicken-pox.[2 3] Children treated in this way developed the disease as often as controls but had fewer skin vesicles and lower temperatures.[3] The modifying effect was greatest when doses of 0·6 ml. per lb. body weight (1·3 ml. per kg.) were given, but there was some slight modification of the disease even among children who received doses of only 0·1 ml. per lb. (0·2 ml. per kg.). Recently P. A. Brunell and colleagues in New York have shown that chicken-pox may be prevented by inoculation with human specific immunoglobulin prepared from donors who were recovering from herpes zoster.[4] The human anti-zoster globulin was given within three days of exposure to one of two children in six families in which a third child had developed chicken-pox. The remaining child in each family was given human normal immunoglobulin as a control. None of the six children given human anti-zoster immunoglobulin developed either clinical chicken-pox or antibody to varicella-zoster virus. In contrast, all six children treated with human normal immunoglobulin developed chicken-pox and four showed rising titres to varicella-zoster virus.

There is clearly no indication for this form of passive immunization when normal healthy children are exposed to chicken-pox, but there is an increased risk of a serious outcome when certain types of patient contract the disease. Children suffering from leukaemia or being treated with steroids or antimetabolites have an increased susceptibility to chicken-pox and are especially liable to develop a severe infection.[5–8]

1 Pollock, T. M., *British Medical Bulletin*, 1969, **25**, 202.
2 Schaefter, M., and Toomey, J. A., *Journal of Pediatrics*, 1948, **33**, 749.
3 Ross, A. H., *New England Journal of Medicine*, 1962, **267**, 369.
4 Brunell, P. A., Ross, A., Miller, L. H., and Kuo, B., *New England Journal of Medicine*, 1969, **280**, 1191.
5 Cheatham, W. J., Weller, T. H., Dolan, T. F., and Dower, J. C., *American Journal of Pathology*, 1956, **32**, 1015.
6 Haggerty, R. J., and Eley, R. C., *Pediatrics*, 1956, **18**, 160.
7 Finkel, K. C., *Pediatrics*, 1961, **28**, 436.
8 Pinkel, D., *Journal of Pediatrics*, 1961, **58**, 729.
9 Carstairs, L. S., and Emond, R. T. D., *Proceedings of the Royal Society of Medicine*, 1963, **56**, 267.
10 Knyvett, A. F., *Quarterly Journal of Medicine*, 1966, **35**, 313.
11 Sargent, E. N., Carson, M. J., and Reilly, E. D., *California Medicine*, 1967, **107**, 141.
12 *British Medical Journal*, 1967, **4**, 438.
13 Fish, S. A., *Journal of the American Medical Association*, 1960, **173**, 978.
14 Brunell, P. A., *Journal of the American Medical Association*, 1967, **199**, 315.
15 Newman, C. G. H., *Lancet*, 1965, **2**, 1159.
16 Ehrlich, R. M., Turner, J. A. P., and Clarke, M., *Journal of Pediatrics*, 1958, **53**, 139.
17 Gordon, J. E., *American Journal of the Medical Sciences*, 1962, **244**, 362.
18 Blair, A. W., Jamieson, W. M., and Smith, G. H., *British Medical Journal*, 1965, **2**, 981.
19 Loebl, W. Y., and Taylor, C. E. D., *Lancet*, 1966, **1**, 1037.

Like other childhood fevers, chicken-pox tends to be more severe in adults, and the adult disease may be accompanied by pneumonia.[9–12] Chicken-pox pneumonia varies in severity from a serious illness which may be fatal to a mild or even symptomless complication. Four cases of fatal chicken-pox have been described in pregnant women.[13] Though this suggests that pregnancy may sometimes predispose to severe attack, other studies have described cases of chicken-pox during pregnancy which were generally mild, and the risk seems no greater than in any adult who contracts the disease.[14 15] Fortunately varicella-zoster virus does not seem to cause congenital anomalies in the foetus, but it occasionally gives rise to severe disseminated disease in the newborn.[16] In these various circumstances, where there are factors known to predispose to the development of severe chicken-pox, prompt administration of human anti-zoster globulin after known exposure to chicken-pox may prevent infection. In established cases of severe chicken-pox—which are also seen occasionally in patients in whom there are no apparent predisposing factors[17 18]—treatment with human specific immunoglobulin[19] or, if this is not available, human normal immunoglobulin[3] may reduce the severity of the disease.

Psychiatric Aspects of Multiple Sclerosis

There is still some confusion about the prevalence and nature of psychiatric changes in patients suffering from multiple sclerosis. Euphoria and hysteria are words commonly found in English studies, both suggesting prominent affective changes, whereas the Continental tradition has concentrated much more on the intellectual loss. D. Surridge[1] and his psychological colleague K. L. Jambor[2] have recently reinvestigated the subject. Their study is based on examination of 108 patients in the department of neurology at Oxford. To avoid diagnostic doubts all patients were excluded who had been ill for less than two years, and an upper age limit of 40 was imposed in order to exclude climacteric mood changes and intellectual loss from other dementias. The control group was made up by 39 patients suffering from muscular dystrophy, which also causes chronic progressive paralysis but does not affect the central nervous system.

The patients were all seen in their home or normal place of residence for lengthy clinical and psychological examination. Jambor's tests included various parts of the Wechsler adult intelligence test, the Babcock sentences, and so on, and he used as controls not only the patients with muscular dystrophy but also some normal persons and some psychiatric patients. Surridge and Jambor's results are quite unequivocal, and they strongly confirm the Continental view of the importance of intellectual deterioration. Two-thirds of their patients showed the typical patchy dementia with impairment of conceptual thinking and perseveration that is sometimes known as the chronic amnestic syndrome or the chronic brain syndrome. None of the patients suffering from muscular dystrophy showed evidence of dementia.

The second important finding concerns the affective changes. One-quarter of the patients showed depressive

1 Surridge, D., *British Journal of Psychiatry*, 1969, **115**, 749.
2 Jambor, K. L., *British Journal of Psychiatry*, 1969, **115**, 765.
3 Brownwell, B., and Hughes, J. T., *Journal of Neurology, Neurosurgery, and Psychiatry*, 1962, **25**, 315.