with growth hormone deficiency is begun the more effective it is, paediatricians should investigate for possible growth hormone deficiency in very young children. The treadmill exercise test is an effective, safe and practical way of doing this.

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References


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Commentary

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With the probability that growth hormone will become available in large quantities, the need to define indications for growth hormone treatment becomes more and more important and probably less and less easy. It is increasingly clear that growth hormone deficiency is not an absolute diagnosis and that relative degrees of deficiency may be clinically relevant. The short reports on tests of growth hormone secretion in this issue of the Archives are directed towards excluding classical growth hormone deficiency and, plainly, if the exercise stimulus is great enough, they can do this very adequately. The question is whether they produce clinically relevant information.

Absolute stature is not an indication for measurement of growth hormone. Only children growing at an abnormally low rate deserve a test of growth hormone secretion and far too many short children growing normally are subjected to the pain of repeated sampling, their parents to the anxiety of awaiting the results, laboratories to the trouble of making the measurements, and the National Health Service to the expense—for no good reason.

Compared with measurements of plasma growth hormone by radioimmunoassay (or indeed with any other biochemical investigation) the precision of measuring stature is formidable. In the best of hands, the coefficient of variation is less than 0·1% and, if measurements are made at successive clinic appointments by the same observer, the coefficient of variation will be comfortably within 1%. It is usually not very difficult to tell over a six month period whether a child is growing normally or not and in the child who really is not growing, the answer can be obvious in as little as three months.

It is as bad medical practice to observe a child growing slowly, even if his height is still within the centiles, and not to investigate and treat him as it is to investigate a child simply for being short. Every day that passes with a poor growth velocity leads to a loss of ultimate stature. Particularly culpable in this respect are doctors who have charge of patients with malignant disease who happily administer craniospinal irradiation and chemotherapy without either keeping or using measurements of the child’s stature.

Who should perform tests of growth hormone secretion?

Many of the requests for the assay of plasma growth hormone are inappropriate and most could be eliminated by the careful assessment of growth velocity and a knowledge of growth assessment. Every physician should measure the heights (and weights if he must) of the children under his care and ought to be able to detect an abnormal growth rate. When he has done so, he should not delay in finding an explanation.

Such an explanation may lie in the whole of the field of paediatric medicine; but it may include growth hormone deficiency. If this is suspected, a normal growth hormone concentration to a physiological test such as deep sleep (preferably monitored electroencephalographically) or strenuous exercise as described in the accompanying papers is probably the safest and simplest way to exclude the diagnosis. Children who seem to produce growth hormone to physiological stimuli but are apparently growth hormone deficient need further detailed endocrine assessment. As most paediatric units have insufficient practice and experience in the performance and interpretation of detailed tests of hypothalmo-pituitary function, tests such as insulin induced hypoglycaemia may be dangerous. Further, they have too often to be repeated in a tertiary referral centre because the test has not been properly conducted, sufficient samples have not been collected, or the assays used have been performed by laboratories that do not subscribe to the national quality control schemes. In the hospital in which I do not undertake specialist endocrine
practice, I have given up trying to do sophisticated endocrine tests, and I conclude that others in a similar position should really question the wisdom of undertaking definitive assessment of the function of the hypothalamo-pituitary axis.

Conclusion

It is wrong to investigate a child growing at a normal rate but children who are growing slowly do require a test of growth hormone secretion, even if they are not absolutely short. Growth rate is a sufficient screening test but if growth hormone deficiency has to be excluded, a physiological test of growth hormone secretion should precede the full assessment of the hypothalamo-pituitary axis, unless that assessment is done in a centre which is regularly performing these investigations.

Pharyngoconjunctival fever

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SUMMARY Sixteen infants and toddlers from four kibbutz day nurseries contracted an illness comprising fever, conjunctivitis, respiratory infection, lymphadenopathy, otitis media, and a new sign, migratory palpebral erythema. Adenovirus type 3 was isolated from the pharynx of the first three children taken ill.

Isolation of adenovirus was reported first in the United States in 1953. More than 30 serotypes are known and the virus may cause 10% of all febrile illness in children. We report an outbreak of pharyngoconjunctival fever affecting infants and toddlers in four day nurseries on a kibbutz in northern Israel. Type 3 adenovirus was isolated from three children and 13 other cases were diagnosed on clinical and epidemiological grounds. There was a high incidence of a hitherto unreported physical sign: migratory palpebral erythema.

Patients

Sixteen children, aged 4 to 20 months, contracted a febrile illness lasting an average of six days. All cases occurred between 24 December 1982 and 13 January 1983, the first two in one room of an infants’ day nursery. Subsequently, an older brother of one of the infants, a toddler from a second nursery, was taken ill. His nurse was the mother of a child from a second room of the infants’ house and the apparent means of spread there. Two toddlers whose mothers worked in the infants’ house where the epidemic began, were affected next. They introduced it into two further nurseries where five more cases occurred. None of the adults became ill.

The clinical features of the 16 children included fever for an average of six days (range: 2 to 12 days), conjunctivitis (in 14), respiratory infection (11), pre-auricular and cervical lymphadenopathy (8), otitis media (5), and migratory palpebral erythema with oedema (8). Adenovirus type 3 was isolated from the pharynx, stool, and conjunctiva of one child and from the pharynx of two others.

Discussion

Pharyngoconjunctival fever caused by type 3 virus is thought to occur most often in older children and to be associated with contaminated swimming pools. The disease has been reported, however, in infants and toddlers, and respiratory shedding can be important to its spread. Conjunctivitis has been observed in 30 to 70% of patients with the disease making the incidence of 88% reported here unusually high. There was evidence of respiratory infection in 69% of our patients, with wheezing and coarse rales frequently present, contrary to the general belief that bronchitis is rare.

Oedema of the eyelids has been described in pharyngoconjunctival fever but migratory erythema, which was seen in 50% of our patients, has not. In some instances the entire upper lid was red and swollen, in others the erythema was noticed first at the medial half of the lid, extending towards the bridge of the nose and mimicking the findings in ethmoiditis. In a few patients the erythema migrated to the inner part of the lower lid, as in dacryocystitis, or to the outer portion of the upper lid, as in dacryoadenitis.

The means of contagion is uncertain. Droplet infection seems likely, but it has been shown that it is virtually impossible to produce pharyngoconjunctival fever from the nasal secretions of diseased children. The disease is contagious for only a short time after onset. Sneezing and coughing are likely to spread the virus before the onset of symptoms. The course is often protracted, with respiratory symptoms persisting for several weeks. The natural history is not well understood.

In the present outbreak, adenovirus type 3 was isolated from three children and 13 other cases were diagnosed on clinical and epidemiological grounds. There was a high incidence of a hitherto unreported physical sign: migratory palpebral erythema. The disease has been reported, however, in infants and toddlers, and respiratory shedding can be important to its spread. Conjunctivitis has been observed in 30 to 70% of patients with the disease making the incidence of 88% reported here unusually high. There was evidence of respiratory infection in 69% of our patients, with wheezing and coarse rales frequently present, contrary to the general belief that bronchitis is rare.