Taste and Appetite in Infancy: Possible Topics for Research

ANOREXIA OF ILLNESS

All mothers are used to the temporary anorexia of an acute illness in their child and where these illnesses are frequent or longer than usual (eg, in developing countries and in vulnerable groups elsewhere), this effect may be more important than the lack of suitable food to offer the child.1

Ways to combat the anorexia of repeated infection requires further study. Appetite stimulants such as megestrol and dronabinol and cytokine inhibitors such as pentoxifylline and thalidomide have been used to promote appetite and weight gain in adults with human immunodeficiency virus.2 Clearly, these pharmacologic approaches would have little relevance to the majority of the population. Nevertheless, it may be that we should consider the assessment of pharmacologic agents to use in combination with nutritional support and antimicrobials in the management of repeated or chronic infections.

Variable Normal Appetite

Appetite, as measured by the amount of food consumed, is very variable in otherwise well children, however, and there is not a close relationship with their growth rate or size.3 Nor are their clear relationships of taste to appetite and the amount of food consumed. I feel that more epidemiologic studies are needed, but I am not sure of their nature.

From the point of view of mechanisms would studies of energy balance (indirect calorimetry and double-labeled water) and the newer hormones (eg, IGFI, leptin) reveal any differences in higher/lower intake groups with similar weight velocities and in higher/lower velocity groups with similar intakes?

Specific Nutrients Related to Taste, Appetite, and Behavior

The effects of zinc on taste are well-known in adults. Zinc supplementation in Guatemalan infants affected their behavior favorably although specific effects on taste ability and appetite were not recorded.4 Similar effects have been seen in developing and developed countries after giving iron to children with iron deficiency anemia resulting in a faster growth rate in the treated groups compared with the placebo groups. Sucrose has a calming effect in the newborn with less crying generally, and in response to pain such as a heel prick. This is probably attributable to the perception of sweetness because aspartame had a similar effect.5 Studies in older infants and toddlers would be worthwhile.

The mechanisms to explain the effects of such variable nutrients are not known. Neurotransmitter metabolism is a candidate but a difficult topic to study with noninvasive methods. Perhaps cerebrospinal fluid measurements might be made (say with and without preceding sucrose or in relation to iron and zinc status) in children requiring repeated lumbar punctures such as in leukemia but the underlying pathology and particularly the therapy might complicate interpretation. Similarly as functional magnetic resonance (NMR) is used more in pediatrics localized brain changes could be examined in response to ingestion of specific nutrients immediately beforehand and in relation to nutrient status. Ethical committees are prepared to sanction NMR in now well children requiring long-term follow up such as those born preterm.

Long-Term Effects of Taste and Appetite Experiences

As far as I can see there have been few studies and longer term ones show few lasting effects despite earlier taste preferences. A recent one, however,6 found that salt preference was greater in adolescents who (by maternal history alone) had experienced ‘mineralo-fluid’ loss in infancy eg, gastroenteritis. Perhaps it would be possible to graft this question onto some of the famous cohorts of children where infant diet and illness have been recorded prospectively and repeated reassessment is continuing.

Pediatric Psychology Interface

Pediatricians realize, more than many other clinicians, the complex interplay of feeding, physiologic responses, and interpersonal

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relationships (usually between mother and child). Nevertheless, although there are many exceptions the pediatric and psychological literature remains largely apart. This makes it likely that pertinent research topics will be polarized. Few pediatricians will think of the “balance of power” in feeding relationships and problems nor that “the mouth is the primary site of learning in the first few months.” It is likely that a better-informed interprofessional liaison will be needed to take some ideas forward and to develop others.

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**Pediatrics** 2000;106;1278

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Pediatrics 2000;106;1278

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