much larger epidemiological study looking at changes in prevalence of respiratory symptoms and atop diagnosis in childhood over a 25 year period.1

Eliciting information on the duration of persistent nocturnal cough is a particularly thorny issue. Falconer et al2 confirm the observations of Archer and Simpson3 that parental recording of nocturnal cough is inaccurate. They found significant underreporting over a three month period and, by hotel contact, those subjects who had at least three episodes of persistent nocturnal cough and each of these episodes lasted for at least one month. Recall for recent events in general is more accurate than distant events. We feel this may have minimised the bias towards under-reporting.

Over the last four decades, epidemiological studies have consistently used wheeze, compared with those who are not persistent nocturnal cough, and tightness of chest as marker symptoms of asthma. Though uncommon medical conditions such as cystic fibrosis and bronchiectasis may present with similar symptoms, we are likely that the numbers are small. All the children in the study were examined by a paediatrician (TKN) and none of these children had overt evidence of either cystic fibrosis or bronchiectasis. Studies on a diagnostic test2,3,4 are hospital based whereas this was a cross sectional community based study and we had constraints on the type of investigations that could be carried out. Long term prospective studies are needed for assessing effectiveness of control. This was designed as a prevalence study. We therefore have no information on effectiveness of control of persistent nocturnal cough.

Finally, we would like to reiterate that persistent nocturnal cough in epidemiological studies is not a good marker for asthma. This is a different population of children when compared with those who are not persistent nocturnal cough, and have a greater tendency to diagnose asthma in this biased hospital population for very valid reasons.


Sodium/glucose cotransporter activity in cystic fibrosis

Errors.—Enhanced intestinal sodium dependent glucose transport has been suggested to contribute to glucose intolerance in cystic fibrosis.1 Moreover, this increased absorption exacerbates the luminal dehydration that contributes to cystic fibrosis pathologi-

the airways of those with cystic fibrosis sodium absorption is also increased, and recent reports suggest that this arises from the failure of a direct inhibitory effect of the cystic fibrosis transmembrane regulator (CFTR) on apical membrane sodium channels.2,3 Increased sodium/glucose absorption in cystic fibrosis intestine may therefore occur in a similar way, or could alternatively involve an intracellular mechanism. To distinguish between these possibilities glucose uptake by the human small intestine in children with and without cystic fibrosis has been measured using brush border membrane vesicle (BBMVs); this allows the study of membrane transport in isolation from intracellular components.

BBMVs were prepared from endoscopic or Crosby capsule biopsies of duodenum or jejunum taken from children presenting with non-specific gastrointestinal symptoms or failure to thrive. Each specimen was obtained from an individual child with control tissues divided on the basis of history into showing no significant abnormality (n=46) or partial or total villus atrophy (n=3). Cystic fibrosis tissues (n=9) were obtained from pancreatic insufficient patients (six ΔF508/ΔF508, two ΔF508/other, one unknown genotype) and they had normal mucosal morphology. BBMVs were incubated for 10 seconds at 20°C in 100 mM sodium thioctionate and 100 μM [3H]-glucose, and active sodium dependent glucose transport was calculated from the uptake differences in the presence or absence of phlorizin (250 μM). Results were analysed by non-parametric one way analysis of variance. Active uptake was observed in control vesicles from biopsies with no significant abnormality, but not in BBMVs prepared from biopsy specimens showing villus atrophy (p < 0.05 v no significant abnormality; fig 1), demonstrating that this preparation is sensitive to changes in epithelial function. However, active glucose transport in BBMVs from those with cystic fibrosis was not significantly different from controls with no significant abnormality (p > 0.05). This contrasts with studies of intact cystic fibrosis biopsy specimens1 where the rate of active sodium/glucose transport was approximately doubled.

The fact that active glucose uptake is not enhanced in cystic fibrosis intestinal BBMVs where the intracellular machinery is absent, indicates that the membrane activity of the sodium/glucose cotransporter is not directly altered in this disease. If wild type CFTR does regulate intestinal sodium linked nutrient absorption, it must do so via a mechanism involving intracellular components.

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