Archives of Disease in Childhood 1992;67:1413

Randomised trial of nutrition for preterm infants after discharge

Sir,—This interesting study draws attention to a possible need for preterm infants to be fed a slightly higher protein, mineral, and energy-containing milk in the first nine months after birth. The three feeding regimens were compared in tables on feed tolerance, stool number, size and consistency, and skinfold thickness (which show no significant differences between diet groups) yet choose not to present any data on growth of weight, length, and head circumference on which they base their conclusions of a possible advantage for this specially designed formula. It is not enough to say that differences are apparent on visual inspection of the charts. In fact, looking at these it seems to me that if there are any differences at all they take place for length and head circumference only in the first few weeks: after this the curves virtually parallel each other. Weight does fall off in those fed the standard infant formula but only between about 6 and 18 weeks. Growth data have been meticulously collected and the statistical methods explained in detail but without giving information on possible diet differences would be difficult to interpret. The incidence of growth trajectories was different between groups. This is a statistically robust procedure as, unlike the t test comparisons of individual two weekly data points, we were taking the entire growth data set for each diet group into account. As growth trajectory is not linear, but curvilinear, growth velocity was calculated from a quadratic fit of the data. The significant differences we reported in length and weight gain between feed groups are valid looking at the duration of growth over the period of observation, which was relatively short. It is well known that postnatal growth is variable and the infants in this study were born at the mean gestational age of 29 weeks. If postnatal growth rate is variable, any differences, however small, would be significant.

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Interleukin-1α and soluble interleukin-2 receptor in atopic dermatitis

Sir,—Dr Agata and colleagues reported enhanced interleukin-2 (IL-2) activity in blood mononuclear cells from patients with food sensitive atopic dermatitis. However, in vitro studies suggest that IL-2 secretion by T helper cells is not only antigen driven but it is also dependent on interleukin-1 (IL-1) expression by cells of the monocyte/macrophage series; IL-1 also upregulates the expression of high affinity receptors for IL-2 on T helper cells type 1. In order to investigate this hypothesis, we measured IL-1α and sIL-2R using an ELISA technique. Three children were assessed: 11 with atopic dermatitis and 12 non-atopic normal controls. The results are shown in the table.

<table>
<thead>
<tr>
<th>Controls</th>
<th>Atopic dermatitis</th>
<th>Unpaired t value</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>9.2</td>
<td>8.6</td>
<td>NS</td>
</tr>
<tr>
<td>Range</td>
<td>4–16</td>
<td>4–16</td>
<td>p&gt;0.02</td>
</tr>
<tr>
<td>IL-1α (pg/ml)</td>
<td>163</td>
<td>369</td>
<td>56.9</td>
</tr>
<tr>
<td>sIL-2R (U/ml)</td>
<td>189</td>
<td>377</td>
<td>p&lt;0.02</td>
</tr>
<tr>
<td>95% CI</td>
<td>75 to 301</td>
<td>262 to 492</td>
<td></td>
</tr>
</tbody>
</table>

CI = confidence interval.

There was a strong direct correlation between IL-1α and sIL-2R (r=0.67, p<0.001) which suggests that expression of the two are dependent. While no apparent relationship existed between either cytokine concentration and disease severity in the criteria of Rajka and Langeland or IGE concentrations, our results demonstrate that there is enhanced endogenous secretion of IL-1α, and increased stimulation of IL-2 receptors, in children with atopic dermatitis. These findings suggest that these cytokines may contribute to the inflammatory process in atopic dermatitis and are consistent with the observations of Dr Agata and colleagues.

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Dr Lucas, Bishop NJ, and Cole comment:

Professor Davies seeks further information on growth in our study on postdischarge nutrition. The growth data collected at two weekly intervals are shown in our graphically (tabulation would have been cumbersome and the graph data show centile placing). Given the small sample size, as expected, relatively few individual two week measurements showed a significant difference between groups. Nevertheless, with the consistently increased weight, length, and head circumference at every two week period up to 9 months’ corrected age in the infants fed the fortified diet, we explored whether the overall growth trajectory was different between groups. This is a statistically robust procedure as, unlike the t test comparisons of individual two weekly data points, we were taking the entire growth data set for each diet group into account. As growth trajectory is not linear, but curvilinear, growth velocity was calculated from a quadratic fit of the data. The significant differences we reported in length and weight gain between feed groups are valid looking at the duration of growth over the period of observation, which was relatively short. It is well known that postnatal growth is variable and the infants in this study were born at the mean gestational age of 29 weeks. If postnatal growth rate is variable, any differences, however small, would be significant.