
Selected Summaries

When to Introduce Complementary Foods?

[Effects of age of introduction of complementary foods on infant breastmilk intake, total energy intake and growth : A randomized intervention study in Honduras. Cohen RJ, Broxvn KH, Canahuati J, Rivera LL, Dewey KG. Lancet 1994, 344: 288-293.]

Exclusive breastfeeding is ideal for young infants during the first few months of life. With the growth of the infant, breastmilk alone will not meet the total energy requirements. The introduction of "complementary foods" (that is foods consumed in addition to breastmilk to meet nutrient needs) is not however, without risk. In developing countries, the high potential of contamination of non-breastmilk foods increases the risk of diarrheal diseases and the resulting morbidity may adversely affect the nutritional status of the child.

The optimal time for the introduction of complementary foods is not clear. The World Health Organization (WHO) currently recommends that complementary foods be introduced between four and six months of age. It is uncertain whether these complementary foods increase the infant's total energy intake or merely displace breastmilk in this age group. To answer this question, a randomized interventional trial was

conducted to compare the breastmilk and total energy intake, and growth of infants given complementary foods *vis-a-vis* an exclusively breastfed cohort.

Primiparous mothers belonging to a low socio-economic status, who had exclusively breastfed for 4 months, were randomly assigned to one of the 3 groups : continued exclusive breastfeeding up to 6 months (*EBF*) (n=50); introduction of complementary foods at 4 months with *ad libitum* nursing from 4-6 months (*SF*)(n=47); and introduction of complementary foods at 4 months with maintenance of baseline nursing frequency from 4-6 months (*SF-M*) (n=44). Preformed baby foods in jars were provided to the *SF* and *SF-M* groups from 4 to 6 months. Subjects were visited weekly to ensure compliance. At 4, 5 and 6 months, measurements were made of infant intake and breastmilk composition. At 4 months, breastmilk intake averaged 797 (139) g per day (no difference among groups). Between 4 and 6 months, breastmilk intake was unchanged in *EBF* infants but decreased in the *SF* and *SF-M* groups ($p<0.001$). Change in total energy intake (including solid foods) and infant weight and length gain did not differ significantly between groups. Weight and length gain from 4 to 6 months were comparable to those of breastfed infants in an affluent USA population.

The results indicate that breastfed infants self-regulate their total, energy intake when other foods are introduced. As a result, there is no advantage in in-

roducing complementary foods before 6 months in this population, whereas there may be disadvantages if there is increased exposure to contaminated weaning foods.

Comments

The energy requirements during the first 6 months of life for optimal growth and the ideal age for introduction of complementary foods have not been critically evaluated in developing countries. The WHO defined energy requirements for infants from studies on bottle fed infants(1). Subsequent work indicated that intakes of exclusively breastfed children are less than those of formula fed infants(2). A comparative study of matched breastfed and formula fed infants in California documented that breastfed infants were at least as physically active as those receiving infant formula(3). The optimal age for introduction of complementary foods should, therefore, be the time when breastmilk alone fails to meet the nutritional requirements of the growing infant.

In this context, the usual recommendation is to introduce complementary foods between 4 to 6 months of age. The present study indicates that there is no caloric advantage of introducing complementary foods at 4 months instead of 6 months of age. The complementary foods introduced at 4 months merely displaced breastmilk without a net increase in caloric consumption.

In this study, conducted under strictly controlled conditions, the energy density of complementary foods was optimal and the diarrheal morbidity

was low in all groups including *SF* and *SF-M*. However, it may be virtually impossible to replicate these conditions in the real life situation in the developing world where the risk of sub-optimal caloric density of complementary food and increased diarrheal morbidity is substantial. Based on these considerations, introduction of semi-solids can be safely delayed till the age of 6 months.

However, the effect of exclusive breastfeeding till the age of 6 months on the micronutrient (particularly iron) status needs evaluation. Further, with more and more women seeking employment outside home, the feasibility of *exclusive* breastfeeding till 6 months of age may become a constraint.

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Tapering Period for Anti-Epileptic Drugs

[Discontinuing anti-epileptic drugs in children with epilepsy: A comparison of a six weeks and a nine months taper period. Tennison M, Greenwood R, hauls D, Thorn M. N Engl J Med 1994, 330:1407-1410.]

Antiepileptic drugs should preferably be discontinued at the earliest due to their potential adverse cognitive and behavioral effects. Although antiepileptic drugs are traditionally tapered when the decision is made to stop treatment, the optimal regimen for withdrawal has been debatable. Recommendations for tapering antiepileptic drugs have ranged from abrupt discontinuation of therapy to gradual tapering over a period of two years. In this study, a six week (relatively short) period and a nine month (relatively long) period of drug tapering were compared in a group of children with epilepsy who were seizure free for either two or four years.

One hundred and forty nine children were randomly assigned to either a six week or a nine month period of drug tapering after which therapy was discontinued. Each group was composed of patients who had been seizure free for either two or four years before drug tapering was begun. Most patients were receiving one antiepileptic drug; none were taking more than two. The children were evaluated periodically during and after the taper period. Sixteen

patients were lost to follow up before the beginning of the taper period. A proportional-hazards regression analysis was used to assess the risk of seizure recurrence among the remaining 133 patients. Seizures recurred in 53 patients (40%). The mean duration of follow-up was 39 months (range, 11-105 months) for the patients who did not have a recurrence of seizures. Neither the length of the taper period (six weeks vs nine months, $p=0.38$) nor the length of time the patients were free of seizures before the taper period was begun (two years vs four years, $p=0.20$) significantly influenced the risk of seizure recurrence. The presence of mental retardation or spikes in the electroencephalogram at the time of tapering increased the risk of seizure recurrence.

It is concluded that the risk of seizure, recurrence during drug tapering and after the discontinuation of antiepileptic drug therapy in children with epilepsy is not different whether the medications are tapered over a six week or a nine month period.

Comments

The earlier studies about the desirable length of the reduction period are mostly empirical. An inverse relationship between the duration of taper period and the rate of relapse, with a significant diminution of the number of relapses with 6 months tapering, was suggested(1). Later the Medical Research Council Antiepileptic Drug Withdrawal Study Group(2) reported that the recurrence rates in the rapid withdrawal group (2-3 months) were similar to those of the slow withdrawal group in adults with epilepsy. Several aspects of

the earlier report(1) may explain the discrepancy between their findings and those of Medical Research Council Antiepileptic Drug Withdrawal Study Group and also the present study which favors a short period of tapering. First, the restrictive definition of epilepsy used in that study probably led to the selection of patients with more severe seizures. Second, multiple medications were stopped simultaneously rather than sequentially. Finally, the sizes of the treatment groups differed greatly, calling into question the effectiveness of the study's randomization process, so that identified confounding factors may explain the poorer outcome with the shorter taper periods.

There are many advantages to a shorter taper period. Medication expenses will be lower. Likewise, the outcome of the attempt to discontinue

treatment may be known sooner, shortening the period of adjustment for the patient. Till further studies prove anything contrary to a short-taper period of six weeks, this regimen can be practiced.

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