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SOME ASPECTS OF CHILD FEEDING

D.M. Blankhart M.D. W.H.O. Nutrition Consultant

School of Public Health, S.N.U.

CHILD FEEDING AND MALNUTRITION

Child feeding is a public health problem everywhere, also in Korea particularly in rural areas and in urban, slum areas.

In both areas is evidence of a considerable growth retardation. Children of two years of age, on the average weigh 15% less than the local standard and show a growth retardation of one year 46% of the children under three years of age weigh less than 90% of the local standard. (Young Ho Kang and In Dal Kim 1968 Korean J.P.H. 5. 77).

However in urban areas the number of malnourished children appears to have decreased during the last four years. Recent data on the nutritional status and the feeding of pre school children in rural areas areas are lacking. So there is a great need to collect nation wide data for adequate planning of imrovement of child feeding.

In many countries nutrition conditions in rural areas are the worst but draw little attention for obvious reasons.

THE WEANING PATTERN IN KOREA

This is the same as in most developing countries. There is prolonged breast feeding: after 24 months of age 88% were breast fed. This is favourable because breast milk is the only source of high quality protein available. Other protein sources were rice and, to a lesser extent vegetables and wheat products. (Ki Yull Lee et al. 1963 JADA. 43. 457). The quantitative data were obtained by enquiry. The type, preparation and ameunts of vegetables and soy beans given have not been closely studied. Usually they are in soups with varying amounts of ingredients.

FACTORS RESPONSIBLE FOR POOR GROWTH AND MALNUTRITION

Poor feeding is by far the main cause: The first six months with the perfect breast feeding and baby care on the back of the mother, growth is even more rapid than in over developed countries. (J. Korean Paed. Ass. 4th suppl. 1967). From 6 ~15 months growth retardation follows and there after growth is the same as in USA but on a lower level (87%). The growth retardation corresponds with the poor weaning food in the same period.

Malnutrition is not likely to be caused by parasites. In Korea very few (1.3%) 1~4 years old children are infested with hookworm (Byon Seol Seo et al. 1969 Korean J. Parasit 7. 53), This does not explain the high, 40%, incidence of anemia in this age group (Bum Suk Tchai, pera, comm.). It does coincide with a low iron intake in the sam period. It has been established that in malnutrition the worm load in the intestines is increqsed.

Diarrhoea also is more the result the cause of malnutrition. Privies had no influence on the incidence and severity of young childrens diarroea (N.S. Scrimshaw 1968 chapter 6). Exclusive dietary and fluid treatment of infant diarrhoea saves more children than antibiotics.

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REMOTE FACTORS

These are poverty and ignorance. The acreage and type of crop farmed has been shown to be related to child growth. (I.S. Dema, Nutrition in relation to agriculrural production. FAO Roma 1965.). In poor families the intake of 1~2 year old children was found to be 900 Calories compared with 1,100 calories in better of families. The higher intake coincided with a better quality of the diet including small amounts of fish, meat or eggs. (D.M. Blankhart 1962, J. Trop. Ped. 8.18).

The other way round, poor growth of infants is a most sensitive measure for economic poverty or disaster. It should direct and evalute relief measures. However economic measures or relief alone do not automatically cause better child nutrition.

The main cause is social and the most important factor is ignorance. Even wealthy people may have malnourished children. The food needed by infants is usually eaten by, but not properly distributed within the family. In Korea this would be a properly prepared mixture of rice, soy been, green leafy vegetables, dry fish and oil. Great Britain during the last war has shown that an improved distribution within the family may improve health even in periods of scarcety. A decrease of tuberculosis and of perinatal mortality was seen.

In this respect the relation between nutrition and family planning in both directions has to be stressed. Good nutrition gives a lower mortality and an increased willingness to apply family planning. Adequate spacing gives less malnutrition.

MIXED FEEDING FORMULAS

New dangers of ignorance appear with the widely advertized but in rural areas unadaptedbottle with milk power feeding. Diarrhoea has been shown to increase with bottle feeding in poor hygienic environment. Cup and spoon feeding of local feasable mixtures have to be preferred over unclean bottles and too diluted milk mixtures causing diarrhoea and increased malnutrition. In non milk drinking countries milk should be considered as a drug like penicillin and adequately prescribed.

A local home prepared formula should also be preferred over commercial mixtures, even if initially availabla without cost. Difficulties of distribution, storage and house hold budget will prevent any favourable impact on the village level. On the other hand an acceptable local infant feeding formula is self-propagating after consequent and uniform nutrition education through Health, Agriculture and Education.

A MASTER FORMULA FOR LOCAL INFANT FEEDING IN KOREA

Quick local surveys of frequencies if food intake of pre school children should be supplemented with detailed data on amounts and way of preparing of protective foods (beans, vegetables and dry fish).

This will lead the way to a master formula for additional mixed feeding, valid for wide areas in Korea. The surveys should be done with health service personnel, supervising public health nurses, nurse aides and nurse students. The survey becomes than a part of the service and the training and will add to the motivation of the presonnel who continue to work in the area.

Some basic studies with rats have been done in Korea on the addition of fat and soy flour to poor rice diets. 10% soy bean flour and 10% soy oil give a reasonable PER of 1.62 (Jong Yull Yu 1968 K.J.N. 1.19). If 10% small dry fish is added the PER most probably will be hiher. Rat experiments with rice 60, soy bean flour 30, small dry whole fish 10, green leafy vegetables 50, oil 5 or 10, may give a firm basis for cheap, home prepared, feasable and acceptable infant weaning food, to be started at the age of 6 months.

This "master formula" for infant weaning food has the advantage to be a simple basis for all nutrition education programs. Simplicity and repetition are the secret of succes in getting the message to the public by all types of media! One has to realize only the tremendous impact of the commercial radio advertizements.

Meanwhile substitutes for each of the 5 elements of the "masterformula" should be tried out and propagated where and when it is needed. E.g. it has been demonstrated that a barley diet in rats is better than a rice diet. (Kum Haw 1968, Korea J. Nutr. 1. 19). With regard to barley it has also been demonstrated that roasted or steamed barley flour has a higher palatability, digestibility and nutritional value than the traditional boiled granular barley. This should be taken in consideration when propagating barley as a weaning food. (Sumi Mo and In Kyu Han Seoul Univ. J. Agr. Biol. Ser. 1967, 18. 163).

Apart from rat experiments experience with infant weaning food formulas should be gained with 6~24 months old children in orphanages under research conditions (intensive pediatric-nursing care)! In this the work of Dean in Wuppertal Germany 1947 and Kampala Uganda is a classical example.

Field trials with cooking demonstrations and group discussions with the mothers should follow in the Health centres as well as in the village homes. This should be planned, guided and analyzed by an experienced Health Education specialist.

Nutrition rehabilitation centres should play their important role in self propagating local infant feeding practices. (F.J. Bennet and I Schneideman, 1966, J. Trop. Ped. **12** Monogr. No. 2, page 39).

A NATIONAL INFANT FEEDING EDUCATION PROGRAM!

The presently available studies on infant feeding formulas as well as experience elsewhere give sufficient basis for an infant feeding education policy, which should be decided by the government through the ministry of health and social affairs. Meanwhile clinical and field trials should be started in a few selected areas throughout the country. Implementing the governement policy will have the advantage of the same approach through all available channels:

Health services	32, 000 health personnel (inl. private)
Education services	130, 000 Teachers
Agricultural Services	6, 400 Rural Guidance Agents (ORD).
	Broad casting system.

News papers may play a role as well.

The basic condition is a truly national child feeding policy, decided and implemented by the government. To this aim (and other as well) a National Nutrition Council should be established by decree attached to the economic planning board.

The other basic condition is that the centre of the child feeding education lies in the actual cooking with the mothers or the schoolgirls. Verbal teaching should always refar to the practice.

In limited pilot areas quick results, within three years demonstrable should convince the governement authorities including economic planning and home affairs, of the effectiveness of child feeding education program.

Elsewhere it has been shown that after a three years program of weekly village visits the weights of two year old children had become 2 kg heavier (J. Wilkinson 1964 W. Afr. J. Med. **13**. 9). This approach will prevent physical and mental retardation usually seen as a late result of wrong infant feeding practice and hence add to the quality of the manpower of a nation, and the happness of a people.

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