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MIXED AND ARTIFICIAL FEEDING

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- The nutritional problems bring great damage to healthy population, and to country economy.
- The breastfeeding satisfies the three fundamental principles: alimentation, health and care – and is the essential factor of child's protection.
- The new-borns with low weight, which benefit in the first 6 months by alimentation exclusively with breast milk, have intelligence coefficient (IQ) more than children fed with artificial formulas, this is shown in an americano-norvegian study.

The tests, realized on a lot of 220 three years aged children shown, that these fed with breast milk in the first 24 weeks of life have an IQ more in medium with 11 points than anothers. This study confirms the theory, that the breast milk is important for intelectual development of children.

The preceeding studies have shown, that the new-borns with normal weight, fed exclusively with breast milk in the first 6 months of life, have an IQ more with 3 points than these artificially fed.

- The breast milk ensures perfect feeding and is the unique aliment which satisfies all needs of child's growing and development in the first 6 months of life.

All substitutes, inclusively the cow's milk, special formulas, powder milk, are less good for children.

In conclusion, the breast milk is an ideal food for new-born and suckling infant.

But, in the case of breast milk insufficiency, its absence or contraindications for breast feeding there is the necessity to feed the infant with another type of milk, that is to pass at mixt or artificial alimentation.

Hypogalactia

- Hypogalactia – diminished capacity of breast secretion in the lactation period . It can appear in any period of lactation.

Classification:

- In function of principal cause we distinguish ***primary and secondary hypogalactias;***
- In function of milk insufficiency degree to the infant's necessities there are distinguish **4 degrees**:

I. deficit under **25%**
II. deficit under **25%-50%**
III. deficit under **50%-75%**
IV. deficit under **75%**

The causes of primary hypogalactias:

- 1. different primary neuroendocrine disorders
- 2. hipoplazia of mammary gland

- 3. not argumented and abusive using of hormonal preparations
- 4. administration of oral contraceptives.

The causes of secondary hypogalactias:

- belate putting at breast of baby after birth;
- rare putting at breast of baby;
- incorrect position;
- negative psychoemotional factors, stress;
- unfavourable socioeconomic factors;

- **The mixt alimentation** is the type of alimentation, when the infant, besides breast milk also receives during the day an another type of milk –adapted or not-adapted milk formula, the ratio between them being different. If the infant receives breast milk less than 1/5 from daily ratio, the remainder constituting the milk formulas, it is considered that he is on **artificial alimentation.**

Adapted formulas are some milk formulas, elaborated scientifically and ecquilibrated after the containing of nutritive ingredients for maximal appropiation of alimentary factor by the breast milk containing. They are made in industrial mode and differ after more criteria.

- **Non-adapted formulas** are some milk formulas prepared in home conditions, representing the milk, especially the cow's milk and their dilutions.
- On the whole globe there is a great lot of adapted milk formulas, on the commodity market of RM being commercialized more than 30. All commercializaed formulas in our republic are, as a rule, imported.

The establishment of artificial alimentation ratio

The alimentary ratio can be calculated after good known "classical" methods: volumetric and energetic.

For a new-born in the 7 days of life can be used Finkelstein formula:

$$L=(N-1)x70 \text{ or } 80,$$

where :

L- daily quantity of milk;

N- number of life days

The coefficient 70 is using for suckers born with the weight under 3250 g, and 80 - for suckers born with the weight over 3250 g.

rom 7th – until 14th day of life can be used Apert formula:

V=1/10 from infant's weight + 200

After 14th day of life the alimentary ratio can be calculaed using **volumetric method** in the following manner:

From the age of 2 weeks until 6-8 weeks:

V=1/5 from infant's weight.
From the age of 6-8 weeks until 4 months:
V=1/6 from body weight.
From the age of 4 months until 6 months:
V=1/7 from body weight.

After 4 months the alimentary ratio will constitute 900-1000 ml until the age of 1year, without to exceed usually the quantity of 1 litre.
If **the energetic method**, more exact, but more pretentious, will be used, we will follow from the following energetic necessities at kilo/body.

I. trimester – 120 kcal/ kg/day
II. trimester – 115
III. trimester – 110
IV trimester – 100 kcal/kg/day

Classification of milk formulas

There is a lot of classifications of milk formulas in function of principles, after which they are shared out:

A. <u>After the degree of adaptation:</u>

I. Non adapted ("Classic")
II. Partially adaptated
III. Adaptated ("humanized", maternized")
IV. Special formulas (therapeutic, dietetic)

<u>B. After age, in which they are indicated</u>:

1. From start (complete)
   a) for prematures
   b) for term new-borns
2. For continuing (diversifying)

<u>C. After the technological peculiarities of preparing</u>:

1. Sweet
2. Acidulated (fermented)

<u>D. After the sourse of proteins:</u>

1. From cow's milk
2. From soya ("vegetal milk")
3. From meet (rarely used in this goal)

E. <u>After compositional peculiarities:</u>

1. Lactose- free or with reduced quantity of lactose
2. Low fat or fat free
3. With increased contain of lipids
4. With increased contain of proteins
5. With increased contain of oligoelements, vitamins etc.
6. Gluten- free

7. Without phenylalanine

The advantages of adaptated milk formulas

1. They are the formulas superiorly to these classic; substituting successfully the human milk in the first months of life .
2. The concentrations of lipids, glucides, proteins and minerals from adapted formulas are appropiated to these from human milk.
3. The glucides are represented exclusively by lactose.

4. The decreased level of cazein in adapted formulas leads to correction of the ratio- serum proteins /cazein , appropiating them to human milk .
5. The adapted formulas have the contain of essential aminoacids near to that in human milk .
6. The ratio saturated fatty acids/unsaturated fatty acids from adapted formulas is near to that in human milk (45/55).
7. The adapted formulas are supplemented with vitamins and iron, recommended dietetic ratio.

Bibliography:

1. Kliegman: Nelson Textbook of Pediatrics, 18th edition. ISBN-13; 978-1-4160-2450-2457.
2. Maydannic V.G. Propedeutics of pediatrics. Kharkiv National Medical University. 2010, p.348
3. Susan M., White, Andrew J. Washington Manual TM of Pediatrics, The, 1st Edition, 2009, Lippincott Williams & Wilkins.
4. Colin D. Rudolph. Rudolphs Pediatrics, The 21 st Edition, 2003.