CHARACTERISTICS OF ADAPTATIVE PERIOD IN INFANTS BORN WITH INTRAUTERINE GROWTH RETARDATION DEPENDING ON GESTATIONAL AGE

Umarova L.N.

Republican Specialized Scientifically – Practical Pediatric Medical Center, Tashkent, e-mail: umidatashkenbaeva@mail.ru

High percentage of perinatal damages in mature and premature infants with IGR with marked abnormalities in health in neonatal period constitutes a serious menace in forming problem dispensary groups.

Keywords: newborns, premature, IGR, adaptation

One of the urgent problems of current medicine is the increase of the number of newborns with syndrome of intrauterine growth retardation (IGR) [1, 3, 6]. The value of this pathology is determined by its large unit weight in neonatal morbidity and mortality.

By WHO data the number of newborns with this pathology ranged from 31 % in Central Asia, up to 6,5 % in developed countries in Europe and IGR incidence varies from 3 to 7 % in USA. Among all children, died in parental period, including stillborns infants with IGR comprise 30–50 % [2, 7, 9].

Despite the achievements in perinatology, there is no trend for reducing this index [4, 7, 8]. The level of morbidity and mortality in parental period is 3-8 times higher in hypotrophic newborns; they retard from their same age newborns in physical and psycho-emotional growth both in the first year of life and more older age [4, 5].

Considering this fact, we studied physical state and period of postnatal adaptation in infants with IGR.

The aim is to study the formation of adaptive, physical capacities in infants with IGR during early neonatal period depending on gestational age.

Materials and methods of research

There was carried out the analysis of clinical manifestations and conditions of main life support systems in 211 children.

Diagnosis of IGR and prematurity at birth were the criteria to study the patients. Our estimates of states were confirmed by:

– small body mass and length at birth;
– mass and growth coefficient at birth < 60;
– disproportional (dysplastic) body-built;
– presence of hypotrophy with absence of growth deficit at birth;

Additionally, at prematurity there considered the decrease of body mass and length lower than tenth percentile of score tables in comparison with proper indices of physical development to the given duration of gestation. Infants were divided into several groups: 1 group – mature infants born with IGR – 108 patients; 2 group – premature infants with IGR – 53 patients; 3 group – control group; infants born at term with normal mass and length indices (60–80) – 50 patients.

Results of research and their discussion

According to studied medical records 161 infants with IGR were investigated, of them 18 (11,1 %) infants with IGR hypoplastic variant and 143 (89,9 %) infants with hypotrophic variant.

Considering mass and growth coefficient, infants with hypotrophic variant were distributed as follows: IGR of I degree (with Tur index 59–55) – 93 (64,1 %) infants, IGR of II degree (with index 54–50) – 32 (22,0 %) infants, IGR of III degree (with Tur index < 50) – 20 (13,9 %) infants. These indices show that in 1/3 infants (35,9 %,) who have been established IGR of II and III degrees could have the negative effect on further infant growth.

The analysis of infants of main groups depending on body mass at birth revealed that infants born at term with body mass from 2001–2500 grams comprised 31 (28,7 %), of them 13 (24,5 %) infants with body mass 1501–2000 grams and 8 (15,0 %) infants with body mass1001–1500 grams. In studied group infants with IGR born at term with body mass lower than 2000 grams no detected.

Thus, premature infants with IGR born with mass less than 2500 grams comprised 86,6 % to gestation term.

The analysis of premature infants in studied category of infants depending on gestational age revealed that 31 (58,5 %) infants were born at term 35–37 weeks, 10 (18,9 %) – at term 32–34 weeks, 12 (22,6 %) – at term 31–29 weeks of pregnancy.

The given analysis showed that in analyzed group of premature infants 41,5 % infants were born at gestation term before 35 weeks. This could effect on particularities of the course of adaptive period at birth so far as it is in early neonatal period with maximum tension that adaptive reactions are passed.

The indication to infants transfer to 2 step of medical care is the presence of pathological state and and/or low degree of maturity. So, premature infants with IGR needed in early rehabilitation in 97,1 % ($p < 0,05$) cases, infants

with IGR born at term in 26,4% ($p < 0,05$), and infants of control group in 10%.

Thus, premature infants needed the therapy at 2 step of general care more frequently than infants with IGR and infants of control group. Indeed, it is connected with more severe state at the moment of birth and in early neonatal period, immaturity, they must be transferred to 2 step of medical care. At the same time, mature infants with IGR followed in hospital more frequently than control group of infants.

The level of health in neonatal period in followed infants was characterized with detection of several pathological states (Table 1).

Table 1

Characteristics of the level of health in children with IGR in neonatal period

Groups / Pathology	Mature infants with IGR (n = 108)	Premature infants with IGR (n = 53)	Control group (n = 50)
PDCNS	92 (99,4)*	53(100)**	26 (52)
IUI	35(32,2)*	28 (52,6)**	6(12)
Bowels dysbacteriosis	13(14,7)*	21 (39,4)**	-
Hyperbilirubinemia	48(44,2)	42 (78,9)**	9(18)
Anemia	54 (50)	39 (73,3)**	-
CM	7(6,44)	5 (9,4)	1(2)
Retinopathy	3(2,76)	9(19,9)	
RDS	4(6,68)	24(45,1)	

Notice. The value of differences ($p < 0,001$) in comparison with indices: * – groups of mature infants with IGR and control group; ** – groups of premature infants with IGR and control group.

As seen from the given data, diagnosis of perinatal damage of CNS of various degree of severity is the main diagnosis of our patients in neonatal period. The frequency of PDCNS varies from 52% (control group) to 99,4% (in mature infants with IGR) – 100% (in premature with IGR).Distribution by degree of manifestation of perinatal damage of central nervous system (PDCNS) is shown in Table 2.

Table 2

Characteristics of perinatal damage of central nervous system by degree of severity

Sex	Mature infants with IGR (n = 108)	Premature infants with IGR (n = 53)	Control group (n = 50)
Boys	52 (48,2)	27 (51,4)	24 (48)
Girls	54 (52,8)	26 (49,6)	26 (52)

Perinatal damage of CNS was diagnosed more in premature infants whereas in mature infants with IGR – mild and moderate degree of severity was reliably higher the indices of control group in both cases. These states were direct threat for newborn life in peri-postnatal period, they formed the basis to further range of pathological processes estimated as complications or residual effects [11].

Neurological pathology in most number of cases combined with pathology of parenchymal organs, later development of infection-inflammatory processes that resulted in disability since childhood in many cases.

Conclusions

The incidence of birth of infants with IGR has been revealed equally in both sex. Hypotrophic variant occurred in 9 times more in studied infants with IGR than in IGR with hypoplastic type. Premature infants were born with duration of gestation up to 35 weeks comprises more than 40 % that determines the high risk of the development of postnatal complications in neonatal period. High percentage of perinatal damages in mature and premature infants with IGR with marked abnormalities in health in neonatal period constitutes a serious menace in forming problem dispensary groups.

References

1. Abdullaeva N.Sh. Intrauterine growth retardation: clinical –cytochemical characteristics, prognosis of morbidity and growth in the first year of life: Abst. diss. …cand. med. scien. – Dushanbe, 2000. – 17 p.

2. Amirova B.P., Starodubova L.F., Makulova R.A., Shamsutdinova Ch.M. Clinical processes of adaptation of infants with intrauterine growth retardation // J Pediatrics. – 1995. – № 4. – 27–31 p.

3. Aroyan G.Ts. Metabolic aspects of small-for –date fetus: Abst. diss. ... cand. bio.scien. – Tver, 2002. – 7 p.

4. Batanova E.V. Formation of physical and nerve- psychic development in children with intrauterine growth retardation and early prognosis of their disorders.: diss. … cand. med. scien. – Ivanovo, 1995. – 197 p.

5. Galiascarova A.A., Lyalkova I.A.Prognostic value of echography in small-for –date fetus // Ultrasound diagnostics in obstetrics. – 1999. – № 4. – P. 298–300.

6. Garmasheva G.L., Konstantinova N.N. Introduction into perinatal medicine. – M.: Medicine, 1988. – P. 24–32.

7. Dementieva G.M. Low body mass at birth. Hypoxia of fetus and newborn // Russian vestnik of perinatology and pediatrics (appendix to journal). – M., 2003. – 89 p.

8. Kulakova N.I. Clinical-functional characteristic of cardio-vascular system condition in newborns: abst. dis. … cand. med. scien. – M., 2000. – 23 p.

9. Classification of perinatal damages of nervous system in newborns. Methodical recommendations. – M.: IUSMC MH RF, 2000. – 40 p.

10. Shabalov N.P. Hemostasis in dynamics in first week of life as reflection of adaptive mechanisms to intrauterine life of newborn // Pediatrics. – 2000 March. – № 3. – P. 84–91.

11. Shilko V.I., Zelentsova V.L., Kolpashikova G.I Up-to date technologies of perinatal help and their efficiency. – Ekaterinburg: URGMA, 2002. – 165 p.