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INDEXES OF CARBOHYDRATE EXCHANGE AT NEW-BORN IN DIFFERENT ETHNIC GROUPS OF MOTHERS WITH PREECLAMPSIA.

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Resume. The author of the article conducted the analysis of dynamics of indexes of carbohydrate exchange at new-born from mothers suffering from preeclampsia. Right after birth the lowest indexes of glucose, which rise to the third days, are marked in umbilical cord blood. Thus new-born of the Buryat nationality have level of sugar in umbilical cord blood lower, than the Russians. The expressed fluctuations of level of glikemias are considered as violation of processes of adaptation.

Keywords. New-born, glucose, umbilical cord blood, preeclampsia, the Buryats, the Russians.

Introduction. Energy needs of a germ, a placenta and a fruit are provided mainly at the expense of glucose from an organism of mother. In process of increase in term of pregnancy glucose level in blood of mother on an empty stomach decreases. Braking gluconeogenesis because of decrease in level of amino acids in blood becomes the additional reason glucopenia on an empty stomach. Since the second trimester of pregnancy, there is an increase of level of glucose in blood after the meal, caused by placental hormones (a progesterone, an estrogen, placental lactogen, etc.) That is develops hyperglycemia physiological insulinorestants. Long hyperglycemia after meal stimulates development on 10-13 weeks of pregnancy of a pancreas of a fruit and secretion of its insulin, cages as insulin of mother, unlike glucose, through a placenta does not get. Under the influence of placental hormones at healthy pregnant women amplifies lipolysis and ketogenesis, thus β -oxybutyric and acetoacetic (ketosis) freely pass acids through a placenta and are used by a liver and a fruit brain as an energy source. Thus, moderated hypoglycemia, hyperglycemia and a metabolic acidosis are typical changes of an exchange at healthy pregnant women [1].

The fruit does not produce glucose, it does not have gluconeogenesis, and all glucose of a fruit - parent. The fruit receives glucose with a speed about 5-6 mg/kg/minutes. At the expense of glucose 80 % of energy needs, and 20 % of energy needs a fruit become covered scoops from arriving from mother lactats, amino acids, glycerol, fat acids. Mothers hyperglycemia, leading to increase of level of glucose in fruit blood (glucose level in fruit plasma makes approximately 70 % from its level in blood of mother), raises synthesis by its organism of insulin.

Right after births and bandagings of an umbilical cord the child should provide independently a brain with glucose (requirements of a brain of the newborn for glucose make about 6-8 mg/kg/minutes and twice exceed requirements of a brain of the adult for the account *большой* weights in relation to weight of a body) that occurs at the expense of activation glycolysis, glycogenolysis, lipolysis and gluconeogenesis. After a birth for the power purposes carbohydrates, and in some hours are used fats (it is sharply lipolysis activated).

Biological basis of the period newborn is transient in functioning of systems and the bodies, providing to an organism of the child possibility of independent existence in an environment. In many respects it is defined by power security of the newborn, which in direct dependence on conditions antenatal, intranatal and postnatal its developments [3,4.] . It is known that in the period of prenatal development the organism uses as the basic power raw materials glycogen which intensive synthesis follows the account of the parent glucose arriving to it transplacental [5]. As at the newborn stocks glycogen are insignificant (glyconeogenesis starts to function only after a birth) in connection with its exhaustion at sorts at them propensity to hypoglycemic reactions [6,7] is marked. Hypoglycemia after a birth can remain within 3 days. Long decrease can result not only in heavy neurologic semiology, but also to hypoglycemic to a clod [8]. Definition of indicators of a carbohydrate exchange in blood of children allows to estimate degree of their power possibilities in the period newborn [9,10].

As carbohydrate stocks of a fruit are quickly exhausted also glucose level decreases, there is a stabilisation of resources of a fatty fabric and at the newborn speed of mobilisation of fats raises. At the analysis of the publications characterising a carbohydrate exchange at the newborn as in dynamics, and of dependence on a sex of a child pays attention considerable divergences of results the researches received by different authors. In this connection the exchange of glucose at newborns, taking into account its changes in dynamics of the adaptable period is considered.

Material and research methods. The analysis of the maintenance of glucose in blood at 181 newborns, from them from mothers with not complicated pregnancy of 50 newborns, with preeclampsia easy degree of 69 children, the heavy degree - 62 is carried out, all groups are divided into 2 subgroups depending on an accessory to Russian and Buryat nationality. The

blood sampling for the analysis was spent at a birth from an umbilical cord, then level of glucose of blood for the first days and for the third days of a life on an empty stomach was defined. Glucose maintenances in blood it was defined by means of a set of reactants of firm "Dialab" (Austria) on biochemical analyzer FP 901. Statistical processing of results was spent by means of the program «Statistics-6,0», average sizes were defined, an average error, an average square-law deviation, series compared among themselves on dispersions by means of criterion of Stjudenta.

Results and discussion. Researches confirm that transient in functioning of systems and the bodies, providing to an organism of the child development and growth possibility in an environment is in many respects defined by power security of newborns which is in direct dependence on its conditions antenatal developments [2]. The increase in concentration of glucose in blood of newborns can be connected with change of its recycling at the raised requirement and its limited use on the power and plastic purposes in conditions of hypoxia [2].

The table1

Level of glucose of blood at newborns from mothers without preeclampsia in dynamics.

	An umbilical cord .	The first day.	The third day.
Buryat (n-25)	3,00±0,81 mmol/l	3,47±0,90 mmol/l	4,76±0,52 mmol/l
Russian (n-25)	3,52±0,65mmol/l*	3,09±0,71 mmol/l	3,87±0,62mmol/l**
* p<0,05 **p<0,05			

In group of newborns of the Buryat nationality at not complicated preeclampsia pregnancy at their mothers, it is noticed that at a birth level of sugar of blood it is authentic more low, than at Russian children ($p < 0,05$). In dynamics, for 1 and 3 days of a life at all newborns the tendency to increase in level of glucose of blood is noted. Thus at the Buryat this tendency is more expressed, especially for 3 days of a life ($p < 0,05$).

The table2

Level of glucose of blood at newborns from mothers with easy preeclampsia in dynamics.

	An umbilical cord	The first day.	The third day.
Buryat (n-30)	2,57±0,43 mmol/l	2,98±0,89 mmol/l	4,61±0,84 mmol/l
Russian (n-39)	3,16±0,72 mmol/l *	3,26±0,77 mmol/l	3,27±0,65mmol/l **
*p<0,05 **p<0,05			

In groups of newborns from mothers with easy preeclampsia degree the Buryat at definition of level of glucose of blood from an umbilical blood is marked propensity to realisation of hypoglicemia. Umbilical blood glucose it is authentic more low at children of the Buryat nationality ($p < 0,05$), than at Russian newborns. In dynamics at children of Russian nationality level of glucose of blood remains practically at one level for 1 and 3 days of a life, at the Buryat the tendency to increase in this indicator is marked. For 3 days of a life glucose of blood at newborns of the Buryat nationality has grown and is authentic more ($p < 0,05$).

The table 3

Level of glucose of blood at newborns from mothers with severe preeclampsia in dynamics.

	An umbilical cord.	The first day.	The third day.
Buryat (n-32)	$2,50 \pm 0,89$ mmol/l	$3,32 \pm 1,16$ mmol/l	$5,81 \pm 4,68$ mmol/l
Russian (n-30)	$2,76 \pm 0,74$ mmol/l	$2,59 \pm 1,1$ mmol/l *	$3,58 \pm 0,59$ mmol/l**
	* $p < 0,05$	** $p < 0,05$	

Glucose level in an umbilical blood at newborns, at severe preeclampsia at mothers, tends to decrease. In dynamics, for 1 and 3 days of a life, increase of level of glucose in both groups is marked. But newborns of the Buryat nationality for 3 days of a life have a tendency to development already hyperglycemia ($p < 0,05$).

At the analysis of level of the maintenance of glucose in blood at women with preeclampsia in 3 trimester of pregnancy are revealed, what at women of Buryats this indicator authentically more low ($3,7 \pm 0,45$ mmol/l), than at Russian - $4,19 \pm 0,64$ mmol/l ($p < 0,05$).

The lowered level of glucose of blood at pregnancy with preeclampsia at women of the Buryat nationality and the available tendency to hypoglicemia at their children after a birth are interconnected. At newborns of Russian nationality the glucose exchange is stabler. Children of the Buryat nationality in dynamics, especially for 3 days, give stable growth of indicators of glucose of blood. The increase in concentration of glucose in blood of newborns can be connected with change of its recycling at the raised requirement and its limited use on the power and plastic purposes in conditions hypoxia [2].

The conclusion. Thus, at newborns of the Buryat nationality from mothers with preeclampsia, at dynamic supervision, more labile exchange and the big figures of the maintenance of glucose in blood in comparison with Russian children is revealed. Probably, it is an indicator of more intense current of adaptation of newborns against preeclampsia. Researches

confirm that transient in functioning of systems and the bodies, providing to an organism of the child development and growth possibility in an environment is in many respects defined by power security of newborns which is in direct dependence on its conditions antenatal developments [2].

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Clinical and functional features of diabetic polyneuropathy in children

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Introduction

Diabetes mellitus (DM) is one of the leading medical-social problems of the modern medicine. The incidence rate growth of insulin-dependent diabetes mellitus (IDDM), or type 1 diabetes mellitus (type 1 DM), is observed worldwide. In 2000 in St. Petersburg the prevalence rate of DM in children (0–14 years) was 91.5 per 100 000, twice as high as in 1985. Also the incidence rate changed from 5.7 per 100 000 children in 1985 to 14.6 in 2000 [2]. Nervous system disorders are the most frequent complication of DM which negatively affects quality of life, causes disability, growth of mortality rate, and large economic losses [10, 11]. Neurological complications may be observed in patients with both type 1 DM, and type 2 DM [8, 9].

The aim of this investigation is to study clinical characteristics, neurophysiological picture and dynamics of these indices in children with diabetic polyneuropathy during the basal-bolus insulin therapy and adjuvant treatment.

Materials and methods

During 2005–2009 in St. Petersburg Child Diabetes Centre 102 children were observed aged 7– 17 (mean age 14.1 years), among them 45 girls (44%) and 57 boys (56%) with type 1 DM complicated by diabetic polyneuropathy. Disease duration ranged from 3 to 16 years (mean 8.6).