DEVELOPMENT OF INFORMATION SYSTEM FOR VITAL LIFE PARAMETERS OF NEWBORNS

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РАЗВИТИЕ ИНФОРМАЦИОННОЙ СИСТЕМЫ ДЛЯ ВАЖНЫХ ПАРАМЕТРОВ ЖИЗНИ НОВОРОЖДЕННЫХ

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Abstract. Information system for monitoring vital parameters set by the medical equipment related to medical diagnostic devices for the study of physiological parameters of a newborn and can be used mainly for long-distance non-contact monitoring of vital activity of the newborn, such as movement, breathing and heartbeat [1]. The relevance of this work is evident and the need to address the information system for monitoring vital parameters, estimates and projections status of newborns as the problems of the complex. The purpose of writing this work was to study the information system for monitoring vital parameters, estimates and forecasts of the state of newborns.

Keywords: Respiratory system, Circulatory system, CNS, The urinary system, Anuria, hematuria

Results and discussion

Certain categories of people, as well as newborn babies require constant monitoring signs of their life in hospitals or at home. The most common reason for this observation – apnea. Apnea – a condition accompanied by a lack of respiratory movements for more than 20 seconds. Caused by various factors such as the depletion of blood carbon dioxide caused by excessive ventilation, diseases such as bronchial asthma, various pulmonary diseases, snoring.

The goal of this research achieved through the following objectives [2]:

1. Definition of the parameters needed to sustain life in neonates;

2. Consideration of the features of the use of neural networks to maintain vital parameters of the newborn;

Evaluation is carried in the information system of control over vital parameters in scores of clinical trials of major organs and body systems on existing regulatory parameters. Assess the severity of each organ and system of the body produce a scale from 0 to 2.

Moreover, assessing the CNS (q1), 0 Points are awarded in the presence of normal reflexes, muscle tone normal newborn, 1 point – with hypotonia, physical inactivity, hyporeflexia, sluggish response to the inspection, 2 points – in the absence of consciousness, muscle atony, weakness, areflexia. Assessing the respiratory system (q2), 0 points awarded if a newborn without oxygen, 1 point is awarded if a newborn needs oxygen through an oxygen mask or nasal catheter, 2 points awarded if a newborn needs mechanical ventilation or spontaneous breathing is at a higher pressure on the exhale through the nasal cannula or endotracheal tube. Assessing the cardiovascular system (q3), 0 Points are awarded in the presence of a normal heart rate, blood pressure normal, 1 point – at a moderate tachycardia (160-170 beats. min), 2 points – in severe bradycardia (<100 bpm. per minute) or tachycardia (> 170 beats. min), hypotension.

Assessing liver (q4) assigned 0 if it is not increased, a score of 1 – an increase of liver least 2 cm 2 points – an increase of liver to 2 cm. Evaluating the urinary system (q5), 0 Points are awarded in the presence of normal hourly urine output, 1 point – when oliguria, 2 points – in anuria, hematuria. Evaluating the skin (q6), with 0 as normal, a score of 1 is assigned at a moderate pallor with perioral and acrocyanosis, 2 points – in severe jaundice, severe pallor, cyanosis, hemorrhage diapedetic character. Evaluating the body temperature (q7), 0 points are assigned in the presence of normal body temperature (36,5-37,2 ° C), 1 point – at moderate hypothermia (36,4-36,0 ° C), 2 points – in hyperthermia (> 37 2 ° C) or severe hypothermia (below 36,0 ° C) [3].

For example: Plod SH.(Patient), Born from 1 pregnancy occurring with the threat of interruption at 5-6 and 8-10 weeks, with SARS in the 26 weeks of pregnancy, from the late abortion in 27 weeks, with a weight of 878 g, with Apgar scores at 5-6 points. Entered the office in the age of 5

hours of life in critical condition, with an estimate of the claimed method for evaluating the severity of 12 points (cyanotic hue of the skin, severe respiratory disorders, require a translation of the fetus hardware mechanical ventilation, hypotension – 36 / 15 mm Hg. Art., oliguria, hepatomegaly – 3 cm, hypothermia – 35,5 ° C). Table 3 shows the daily protocol severity of preterm infants Plod SH by organs and systems in points [4]. The total score (Q) for the child the department was q1 (1) + q2 (2) + q3 (2) + q4 (2) + q5 (l) + q6 (2) + q7 (2) = 12 points which corresponds to a critical condition and is prognostically unfavorable for life and disease outcome. The table (1) describes the evaluation system as a base for the information system, which suggested.

Table 1

Severity of clinical disorders of organs and systems of preterm infants in points

No.	Systems and organs of the newborn	Points	Clinical signs
1.	CNS (q1)	2	The absence of consciousness, muscle atony, weakness, areflexia
		1	Hypotonia, lack of exercise, hyporeflexia, sluggish response to the inspection
		0	Normal reflexes, normal tone
2.	Respiratory system (q2)	2	Needs a ventilator or is on spontaneous breathing with a high-pressure breathing through the nasal cannula or endotracheal tube
		1	Needs oxygen through an oxygen mask or nasal catheter
		0	Without oxygen
3.	Circulatory system (q3)	2	Bradycardia (<100 bpm. Per minute) or tachycardia (> 170 beats. Min), hypotension
		1	Moderate tachycardia (160-170 beats. Min)
		0	Normal heart rate, blood pressure normal
4.	liver (q4)	2	Increased more than 2 cm
		1	Enlargement of the liver less than 2 cm
		0	not increased
5.	The urinary system (q5)	2	Anuria, hematuria
		1	Oliguria
		0	Normal hourly diuresis
6.	Skin (q6)	2	Severe jaundice, severe pallor, cyanosis, bleeding diapedetic character
		1	Moderate pallor with perioral and acrocyanosis
		0	
7.	Body temperature (q7)	2	Hyperthermia (> 37,2S) or severe hypothermia (below 36,0 °)
		1	Mild hypothermia (36,4 ° -36,0 ° C)
		0	Normal temperature (36,5-37,2 ° C)

Table 2

The severity of preterm infants, expressed in points

The total score (Q)	Severity general condition
1-2	Moderate severity
3-5	Serious
6-9	Very serious
10-14	Extremely serious

Table 3: Daily protocol severity of preterm infants in organs and systems in points

1.	CNS (q1)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2.	Respiratory system (q2)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3.	Circulatory system (q3)	2	2	2	2	2	1	2	2	1	1	0	1	1	1	1	1	1
4.	liver (q4)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
5.	The urinary system (q5)	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.	Skin (q6)	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7.	Body temperature (q7)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.	The total score (Q)	12	9	9	9	9	8	9	9	8	8	7	8	8	8	8	8	8

Thus, the information system to determine the change in the control of any single vital parameters of the newborn, as well as the status of various systems of the body, which in turn can influence the particular system more quickly.

Conclusion

Thus, admission to the Department of preterm infants within a few minutes with the help of the information system for monitoring vital parameters doctor objectively assesses the severity of his condition, and assigns the appropriate examinations and treatment. Since then, the daily assesses the child's condition, keep the minutes of the dynamics of the state in points, depending on the identification of the most vulnerable systems in a timely, and adequately corrects assigned therapy. Due to the dynamic monitoring of the preterm infants doctor may suggest the forecast outcome.

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