

ORIJINAL MƏQALƏ

AÇIQ GİRİŞ (OPEN ACCESS)

MULTIDISCIPLINARY APPROACH TO MONITORING THE HEALTH STATUS OF PRETERM AND SICK NEWBORNS

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Abstract

Preterm infants and newborns with various pathological conditions belong to a high-risk group during the perinatal and early neonatal periods. Reducing mortality and disability rates in these children, as well as improving long-term health outcomes, requires a systematic and multidisciplinary approach. The aim of this study was to analyze the characteristics of the follow-up (catamnestic) monitoring model implemented at the Sumgait Perinatal Center and its role in the long-term monitoring of preterm and sick newborns. The organizational structure, assessment methods, and follow-up stages of the catamnestic service carried out by a multidisciplinary team were analyzed. The implementation of a structured follow-up service plays an important role in early diagnosis, timely rehabilitation, and correction of developmental delays.

Keywords: preterm birth, follow-up care, multidisciplinary approach, newborns, early intervention

INTRODUCTION

Preterm birth is one of the leading causes of perinatal mortality and childhood disability worldwide. According to the World Health Organization, approximately 15 million babies are born prematurely every year, and a significant proportion of them face long-term health complications (1).

These children are at increased risk of respiratory disorders, central nervous system damage, visual and hearing impairments, as well as psychomotor developmental delays (2).

Advances in neonatology have significantly improved the survival rates of preterm infants over recent decades. However, long-term monitoring of their health status and early detection of developmental disorders remain essential (3).

Modern healthcare systems emphasize the regionalization of perinatal care and the organization of follow-up services for high-risk newborns. Catamnestic follow-up allows systematic assessment of physical, neurological, and psychomotor development and ensures timely

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implementation of early intervention programs (4).

In the Republic of Azerbaijan, perinatal care is organized according to the regionalization principles approved by the Ministry of Health on February 19, 2010. This model provides a three-level perinatal care system and ensures the concentration of high-risk pregnancies and newborns in tertiary (level III) perinatal centers (5).

The aim of this study was to analyze the multidisciplinary follow-up model implemented at the Sumgait Perinatal Center and evaluate its role in monitoring the health status of preterm and sick newborns.

MATERIALS AND METHODS

The study was conducted based on the activities of the catamnestic follow-up service organized in the outpatient department of the Sumgait Perinatal Center, operating under the Sumgait Medical Center.

Since 2022, a multidisciplinary follow-up system has been implemented to provide long-term monitoring of preterm infants and newborns with neonatal pathologies.

The follow-up program mainly includes newborns from high-risk groups who received treatment in neonatal intensive care units. Preterm infants included in the follow-up program were stratified according to gestational age, birth weight, and clinical risk factors (Table 1).

These groups include:

- infants with very low birth weight (<1500 g);
- extremely preterm infants (<32 weeks of gestation);
- infants with hypoxic-ischemic encephalopathy;
- newborns with neonatal infections or respiratory distress syndrome;
- infants requiring prolonged intensive care treatment.

Table 1. Risk stratification of preterm infants

Risk category	Gestational age	Birth weight	Clinical characteristics	Follow-up priority
Moderate risk	32–36 weeks	1500–2500 g	Mild respiratory problems, stable condition	Regular pediatric monitoring
Very preterm (VP)	<32 weeks	<1500 g	Increased risk of neurological and developmental disorders	Multidisciplinary follow-up
Very low birth weight (VLBW)	Any GA	<1500 g	Feeding difficulties, growth delay, risk of developmental impairment	Intensive developmental monitoring
Extremely low birth weight (ELBW)	Usually <28 weeks	<1000 g	High risk of neurological impairment, chronic lung disease, ROP	Intensive multidisciplinary follow-up
High clinical risk	Any GA	Any weight	Hypoxic-ischemic encephalopathy, severe infection, prolonged ventilation	Specialized long-term monitoring

Monitoring is performed by a neonatologist, pediatrician, pediatric multidisciplinary team consisting of a neurologist, pediatric cardiologist,

ophthalmologist, audiologist, physiotherapist, rehabilitation specialist, and psychologist.

During follow-up visits, the following parameters are assessed:

- anthropometric indicators (weight, length, head circumference);
- neurological status (muscle tone, reflexes, coordination);
- psychomotor development;
- visual and auditory functions;
- cardiovascular and respiratory status;
- nutritional and metabolic status.

Corrected age is used to evaluate the developmental progress of preterm infants,

allowing a more accurate interpretation of developmental milestones (6).

The follow-up process includes several stages:

- initial examination within 7–14 days after hospital discharge;
- monthly pediatric and neurological assessment during the first 6 months;
- monitoring of psychomotor development between 6 and 12 months;
- evaluation of social adaptation and speech development between 1 and 3 years of age.

Table 2. Follow-up protocol for preterm and high-risk infants

Age period (corrected age)	Main assessments	Specialists involved	Purpose of follow-up
7–14 days after discharge	General physical examination, anthropometric measurements (weight, length, head circumference), neurological screening	Neonatologist, pediatrician	Initial evaluation after discharge and identification of early complications
0–3 months	Growth monitoring, neurological assessment, feeding evaluation, hearing screening, ophthalmologic examination if indicated	Pediatrician, neurologist, ophthalmologist, audiologist	Early detection of developmental disorders and sensory impairments
3–6 months	Assessment of motor development, muscle tone, reflexes, nutritional status	Pediatrician, neurologist, physiotherapist	Early identification of motor development delays and initiation of rehabilitation
6–12 months	Psychomotor and cognitive development assessment, vision and hearing screening, evaluation of motor milestones (sitting, crawling)	Pediatrician, neurologist, rehabilitation specialist	Monitoring developmental progress and adjusting rehabilitation programs
12–24 months	Speech development assessment, social interaction	Pediatrician, neurologist,	Early detection of speech and behavioral disorders

Age period (corrected age)	Main assessments	Specialists involved	Purpose of follow-up
	evaluation, fine motor skills monitoring	psychologist, speech therapist (if needed)	
24–36 months	Cognitive development, social adaptation, behavioral assessment, coordination and motor skills evaluation	Pediatrician, neurologist, psychologist, rehabilitation specialist	Long-term developmental monitoring and preparation for preschool adaptation

RESULTS

The implementation of the catamnestic follow-up model at the Sumgait Perinatal Center has enabled systematic monitoring of the health status of preterm and sick newborns.

Through the multidisciplinary approach, physical, neurological, and psychomotor developmental indicators were dynamically assessed, and early-identified problems were addressed through timely interventions.

Regular assessments were conducted in the following areas:

- somatic growth (weight gain, length increase, head circumference growth);
- neurological status and reflex evaluation;
- development of psychomotor skills;
- screening of visual and auditory functions.

Early rehabilitation interventions contributed to improved motor development and better psychomotor outcomes. Educational programs and psychosocial support provided to parents improved home

care practices and early developmental stimulation.

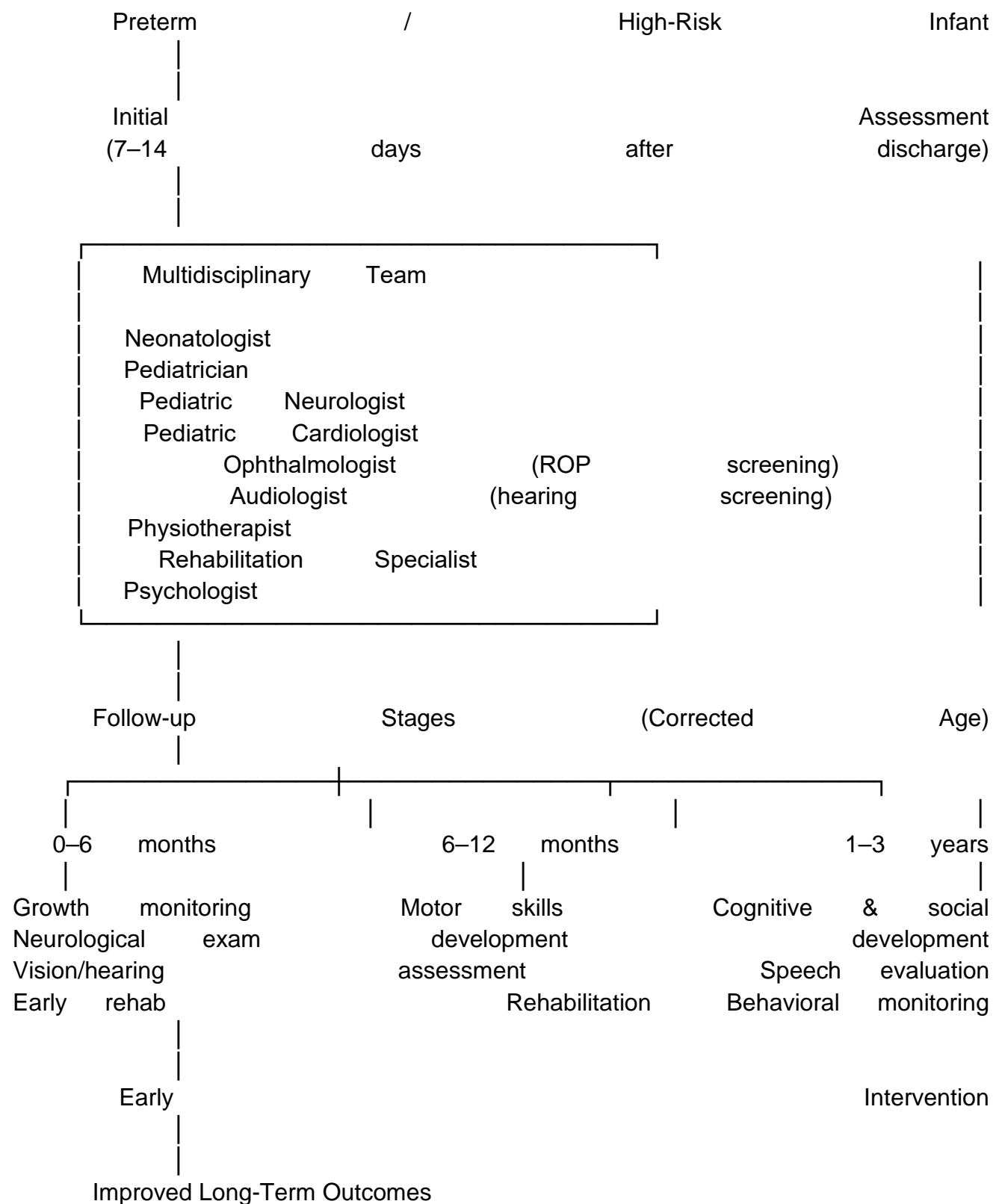
DISCUSSION

Long-term follow-up of preterm infants is one of the key areas of modern neonatology. International studies indicate that early diagnosis and early intervention programs significantly reduce the risk of neurological and developmental disorders (7).

The multidisciplinary team approach allows comprehensive evaluation of the child's health status and facilitates the development of individualized rehabilitation plans.

The follow-up model implemented at the Sumgait Perinatal Center is consistent with the national perinatal regionalization system and ensures continuity of medical care beyond the neonatal period. This approach improves the effectiveness of early rehabilitation and positively influences the long-term health outcomes of preterm infants. The structure of the multidisciplinary follow-up model implemented at the Sumgait Perinatal Center is presented in **Figure 1**.

Figure 1. Multidisciplinary follow-up model for preterm and high-risk infants



CONCLUSION

Monitoring the health status of preterm and sick newborns is one of the priorities of modern healthcare systems. The

multidisciplinary catamnestic follow-up model provides opportunities for early diagnosis, early intervention, and timely correction of developmental disorders.

The model implemented at the Sumgait Perinatal Center ensures continuity of medical supervision after the neonatal period and contributes to improving the long-term health outcomes of preterm infants.

RECOMMENDATIONS

- Expansion of catamnestic follow-up services to other regions of the country is recommended.
- Implementation of multidisciplinary team approaches improves the effectiveness of early diagnosis and rehabilitation.
- Expanding parental education programs positively affects child development.
- Establishing a national monitoring system to evaluate follow-up services is advisable.

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МУЛЬТИДИСЦИПЛИНАРНЫЙ ПОДХОД К МОНИТОРИНГУ СОСТОЯНИЯ ЗДОРОВЬЯ НЕДОНОШЕННЫХ И БОЛЬНЫХ НОВОРОЖДЁННЫХ

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Резюме

Недоношенные дети и новорождённые с различными патологическими состояниями относятся к группе высокого риска в перинатальном и раннем неонатальном периодах. Снижение показателей смертности и инвалидности среди этих детей, а также улучшение отдалённых результатов их здоровья требуют системного и мультидисциплинарного подхода.

Целью данного исследования являлся анализ особенностей модели катамнестического наблюдения, внедрённой в Сумгаитском перинатальном центре, а также оценка её роли в долгосрочном наблюдении за недоношенными и больными новорождёнными. Были проанализированы организационная структура, методы оценки и этапы катамнестического наблюдения, осуществляемого мультидисциплинарной командой специалистов.

Внедрение структурированной службы катamnестического наблюдения играет важную роль в ранней диагностике осложнений, своевременной реабилитации и коррекции задержек развития у детей группы высокого риска.

Ключевые слова: преждевременные роды, катamnестическое наблюдение, мультидисциплинарный подход, новорожденные, раннее вмешательство

VAXTINDAN ƏVVƏL DOĞULMUŞ VƏ XƏSTƏ YENİDOĞULMUŞLARIN SAĞLAMLIQ VƏZİYYƏTİNİN MONİTORİNGİNƏ MULTİDİSSİPLİNAR YANAŞMA

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Xülasə

Vaxtından əvvəl doğulmuş körpələr və müxtəlif patoloji vəziyyətləri olan yenidoğulmuşlar perinatal və erkən neonatal dövrdə yüksək risk qrupuna aid edirlər. Bu uşaqlar arasında ölüm və əlillik göstəricilərinin azaldılması, həmçinin uzunmüddətli sağlamlıq nəticələrinin yaxşılaşdırılması sistemli və multidissiplinar yanaşma tələb edir.

Tədqiqatın məqsədi Sumqayıt Perinatal Mərkəzində tətbiq olunan katamnestik müşahidə modelinin xüsusiyyətlərini təhlil etmək və onun vaxtından əvvəl doğulmuş və xəstə yenidoğulmuşların uzunmüddətli izlənməsində rolunu qiymətləndirmək olmuşdur. Multidissiplinar komanda tərəfindən həyata keçirilən katamnestik xidmətin təşkilati strukturu, qiymətləndirmə metodları və müşahidə mərhələləri təhlil edilmişdir.

Strukturlaşdırılmış katamnestik müşahidə xidmətinin tətbiqi ağırlaşmaların erkən diaqnostikasında, vaxtında reabilitasiyanın aparılmasında və inkişaf ləngimələrinin korreksiyasında mühüm rol oynayır.

Açar sözlər: vaxtından əvvəl doğuş, katamnestik müşahidə, multidissiplinar yanaşma, yenidoğulmuşlar, erkən müdaxilə