Romanian obstetrics and the impact of maternal obesity: an increasingly frequent and demanding reality

Obstetrica românească și flagelul obezității materne: o realitate din ce în ce mai frecventă și solicitantă

Mihai Dimitriu[1,2], Daniel Călin[1,2], Diana-Claudia Gheorghiu[2], Ana-Maria Ciobanu[2], Mihail Bănacu[1,2], Ina Popescu[1,2], Adelina Dan[2], Andra Ionescu[2], Alexandra Matei[1,2], George Roșu[2], Nicolae Bacalbașa[2], Adriana Caimacan[2], Andreea Moga[2], Elena Minoiu[2], Alla Al-Azawi[2], Bogdan-Mihai Niculae[3], Bogdan Socea[1], Crîngu Ionescu[1,2]

1. "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

2. Department of Obstetrics and Gynecology, "Saint Pantelimon" Clinical Emergency Hospital, Bucharest, Romania

3. Colentina Clinical Emergency Hospital, Bucharest, Romania

The prevalence of obesity is rising globally in developed and developing countries, including Eastern European ones and, above all, Romania. Assessing the rate of obstetric complications in the Department of Obstetrics and Gynecology at the "Saint Pantelimon" Clinical Emergency Hospital, Bucharest, there was noted a high prevalence of this comorbidity causing disorder. We report on this occasion the case of a 28-year-old pregnant woman with a postterm pregnancy, without obstetric specialisation supervision, in whom morbid obesity has led to multiple obstetric complications with vital maternal-fetal risk and, implicitly, to caesarean delivery. The case was particularly well publicized in the press because none of the three clinics which the patient was transferred to was willing to assume its completion. In the current context, in which the incidence of obesity meets new limits, becoming a disease with a significant impact on pregnancy evolution, an increase in caesarean delivery and in pre- and postoperative complications due to obesity can be expected.

Keywords: caesarean section, obesity in pregnant women, maternal obesity

Active lupus in pregnancy

Lupus sistemic acut în sarcină

Daniel Călin[1,2], Mihai Dimitriu[1,2], Diana-Claudia Gheorghiu[2], Ana-Maria Ciobanu[2], Mihail Bănacu[1,2], Ina Popescu[1,2], Adelina Dan[2], Andra Ionescu[2], Alexandra Matei[1,2], George Roșu[2], Nicolae Bacalbașa[2], Adriana Caimacan[2], Andreea Moga[2], Elena Minoiu[2], Alla Al-Azawi[2], Bogdan-Mihai Niculae[3], Bogdan Socea[1], Crîngu Ionescu[1,2]

1. "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

2. Department of Obstetrics and Gynecology, "Saint Pantelimon" Clinical Emergency Hospital, Bucharest, Romania

3. Colentina Clinical Emergency Hospital, Bucharest, Romania

Introduction. Systemic lupus erythematosus (SLE) is a multi-system autoimmune disorder which often affects women at childbearing years. Both maternal and fetal mortality and morbidity are severely altered, with high risk of preeclampsia and premature delivery, and in the case of positive antiphospholipidic and anti-DNA antibodies, miscarriage and stillbirth are common. **Discussion.** Systemic lupus erythematosus is a common autoimmune condition that affects women of childbearing age. We present the case of a 29-year-old primiparous woman at 29 weeks of gestation, diagnosed with SLE with multiple organ involvement at the age of 13 years old, when she suffered from a stroke. A caesarean section was performed (for severe preeclampsia and HELLP syndrome) and the premature infant was admited into NICU (neonatal intensive care unit). The patient condition improved significantly after high doses of dexamethasone, liver protective drugs, anticoagulants, and antihipertensive medication. The evolution was favorable, with the normalization of ALT, AST and blood pressure values. The patient was discharged after 14 days of hospitalization. The child was discharged, in good condition, after 65 days. **Conclusions.** It is difficult to differentiate SLE from preeclampsia, HELLP or AFLP (acute fatty liver of pregnancy), considering that they might have even coexisted and SLE can affect the human body at any level. The management of pregnant women with SLE is extremely challenging, and a multidisciplinary approach – including an obstetrician, rheumatologist, intensive care physician and neonatologist – should be achieved.

Keywords: preeclampsia, systemic lupus erythematosus (SLE), SLE flare, autoimmune disorder, fatty liver, pregnancy

Medico-social implications of newborns with extremely low birthweight

Implicațiile medico-sociale ale nou-născuților cu greutate extrem de mică la naștere

Aniko Manea[1], Daniela Cioboată[2], Oana Costescu[1], Nicoleta Lungu[2], Florina Doandeș[2], Mărioara Boia[1]

1. Neonatology Department, "Victor Babeș" University of Medicine and Pharmacy, Timișoara, Romania

2. Neonatology Department, "L. Țurcanu" Emergency Clinical Hospital for Children, Timișoara, Romania

The rate of survival of the newborns with extremely low birthweight (ELBW; birthweight <1000 g) has significantly increased due to actual neonatal therapies. Immediate and late complications determine the necessity of long-term monitoring of this category of newborns. **Objectives.** In this study, the authors aim at determining the main complications occurred in a lot of ELBW newborns, complications with an impact on the subsequent neurological and development prognosis. **Materials and method.** The study was developed on a lot of 40 ELBW newborns hospitalized in the Neonatology Clinic of "L. Ţurcanu" Emergency Clinical Hospital for Children, Timișoara. **Results and discussion.** In the studied lot, intraventricular hemorrhage of several degrees was present in a proportion of 70%, hypoxic ischemic encephalopathy was present in 10% of cases, and periventricular leukomalacia in 15% of cases. In 5% of the cases, periventricular leukomalacia associated to intraventricular hemorrhage. Retinopathy of prematurity of several stages was present in 45% of the prematures included in the lot. Bronchopulmonary dysplasia was diagnosed in 10% of the cases, and patent ductus arteriosus in 7.5%. The hearing testing was performed in all prematures at discharge from hospital, hearing deficit being found in 15% of the newborns. **Conclusions.** The objective analysis of the occured complications, and the monitoring through a follow-up program lead to the early interpretation of the alert signs. The reduction of rate of sequelae at distance, of neurological and motor disabilities, as well as the reduction of mortality are proportional with this early approach.

Keywords: extreme prematurity, complications

Chronic lung disease – is outpatient treatment possible?

Boala pulmonară cronică a prematurului poate fi tratată în ambulatoriu?

Adriana Dan[1], Arina Sârbu[2], Cristina Buzduga[3], Cristina Chiriac[3]

1. MD, PhD, Neonatology Department, Bucharest University Emergency Hospital, Romania

2. MD, Department of Pediatrics, Bucharest University Emergency Hospital, Romania

3. MD, Neonatology Department, Bucharest University Emergency Hospital, Romania

Chronic lung disease (CLD) is diagnosed clinically as persistent need for oxygen beyond 28 days of life or 56 weeks of postconceptional age. The main risk factors for CLD are low gestational age, very low birth weight, and prolonged mechanical ventilation. CLD leads to multiple and severe complications, caused by the disease itself or by its specific treatment. The disease may have a long clinical course that can go far beyond neonatal age or standard discharge weight. Prolonged hospitalization in the NICU is difficult due to the overcrowding of these facilities. It is not possible to transfer these oxygen-dependent pediatric-aged patients in pediatric hospitals, or in other birth centers; therefore, a solution for patients with CLD could be to continue the treatment at home. As in Romania neither the home care services, nor the primary health care network are prepared to take care of patients with this pathology, their treatment and monitoring would fall into the full responsibility of the neonatologist. We present our experience with few cases of premature babies with severe CLD who were hospitalized in our clinic for several months and then discharged at home with oxigenotherapy, oral treatment, and continuous cardiorespiratory monitoring; the babies were enroled in a strict follow-up program coordinated by the neonatologist. All cases had a favorable clinical course to complete resolution, demonstrating that CLD can be treated succesfully in outpatient care, if the families are able and willing to involve themselves in the care of their baby, and they respect thoroughly the medical recommendations.

Keywords: chronic lung disease, bronchopulmonary dysplasia

A rare cause of brachial plexus palsy
Cauză rară de pareză de plex brahial

Cristina Chiriac[1], Adriana Dan[2], Liliana Pădure [3]

1. MD, Neonatology specialist, Bucharest University Emergency Hospital, Romania

2. Neonatology MD, PhD, Bucharest University Emergency Hospital, Romania

3. Medical recovery MD, "Nicolae Robanescu" National Center, Romania

Brachial plexus palsy is usually a complication of traumatic labor and is produced by brachial plexus injury during expulsion. We hereby present the case of a premature baby, extracted by emergency caesarean section at 28 gestational weeks for signs of fetal distress, therefore in an apparently non-traumatic context (except for a transverse presentation). The clinical examination at birth revealed an impressing edema on the entire left superior limb, axillary area, left subscapular and cervical area with extensive bruising; the left hand was stiff and fixed in ulnar deviation and no active movement of the limb could be observed. The medical interventions consisted in systemic and local treatment with heparin, group B vitamin infusion, and upper positioning of the affected arm. The clinical course of the case was favorable, with the progressive reduction of the edema and bruising, and progressive recovery of limb movements starting from the shoulder down to the elbow. The ulnar deviation and persistent altered mobility of the hand required kinesiotherapy performed by both medical staff and the mother. Both clinical aspect and the neurological function of the affected limb were improved remarkably and relatively fast under this treatment, despite the clinical severity shown at birth. The particularity of the case consisted in the association of an antenatal pregnancy pathology (multiple fibroma protrusive into the utero cavity) which could led to brachial plexus palsy of the newborn (extracted through caesarean section) by compression and intrauterine vicious position.

Keywords: brachial plexus palsy, traumatic perinatal complications

Diagnostic issues in a neonatal thyrotoxicosis case
Probleme de diagnostic într-un caz de tireotoxicoză neonatală

Cristina Chiriac[1], Adriana Dan[2]

1. MD, Neonatology specialist, Bucharest University Emergency Hospital, Romania

2. Neonatology MD, PhD, Bucharest University Emergency Hospital, Romania

Neonatal hyperthyroidism is a rare condition (under 1% of all pediatric thyroid diseases). Usually, these cases are found in newborns from mothers with Graves disease. We hereby present the case of a premature baby (29 gestational weeks, 1400 g) from a pregnancy without any known endocrine pathology, with maternal hypertension of unknown etiology; the baby was admitted in NICU for mild respiratory distress syndrome. Few days after birth, the newborn developed intermittent fever spikes and episodes of tachycardia (over 200/min), uncorrelated with temperature or hemodynamic status, in the context of good general state and progressive resolution of respiratory distress. Our first diagnostic suspicion of neonatal sepsis was not confirmed because the lack of inflammatory markers and repeated negative blood cultures. The cardiac examination ruled out any cardiac structural anomaly and diagnosed the episodes of arrythmia as being sinus tachycardia. TSH and thyroid hormones determination in the newborn was recommended, which revealed a congenital hyperthyroidism. At that point, an endocrinology examination for the mother was considered, and blood tests showed the presence of stimulatory antibodies and we diagnosed Graves disease. The newborn received treatment with propanolol, which controlled the arrythmia episodes, and during next weeks the thyroid hormones levels decreased. The particularity of the case consisted in the fact that the newborn had a poor clinical picture and an unknown family history for endocrine disease. The mother's disease was diagnosed only subsequently to our investigations of the newborn's clinical symptoms; her previously resistant-to-treatment arterial hypertension was managed and her condition has improved.

Keywords: neonatal hyperthyroidism, thyrotoxicosis

Intrauterine testicular torsion – case presentation
Torsiune testiculară intrauterină – prezentare de caz

Adriana Dan[1], Magdalena Mihai[2], Cristina Buzduga[3]

1. Neonatology MD, PhD, Bucharest University Emergency Hospital, Romania

2. Neonatology MD, Bucharest University Emergency Hospital, Romania

3. MD, Neonatology specialist, Bucharest University Emergency Hospital, Romania

Cryptorchidia is the most common genital abnormality in the newborn. In most cases, it is unilateral, the testicle being ectopic (located in the abdomen or in the inguinal canal), but it may also be absent due to agenesis or testicular atrophy. Although in most cases the missing testicle at birth will descend in the following months, neonatal cryptorchidism should be followed by further investigations. The first step in the differential diagnostic algorithm is the scrotum and abdominal ultrasound examination. We present the case of a newborn with a false unilateral cryptorchidism, without any other clinical sign; the routine postnatal ultrasound revealed a small, sclerotic, calcified testicle into the scrotum. At this point, reviewing the pregnancy history, we discovered that some vascular alterations in the testes were noted at 28 weeks of gestation by the antenatal ultrasound examination, but no therapeutic intervention was discussed. The pediatric surgeon to whom the baby was referred confirmed the diagnosis of a testicular necrosis after intrauterine torsion, and scheduled a later intervention for the excision of the necrotic tissues and the fixation of the normal contralateral testicle. This case emphasizes the importance of paraclinical investigations and surgical consult when neonatal cryptorchidism is found, prior to the discharge from the neonatology unit; this would avoid possible future legal issues, because a later identification of testicular sclerosis may lead to the diagnostic of neglected postnatal testicular torsion, when emergency surgical procedure is mandatory. Any possible intrauterine intervention in such cases is questionable.

Keywords: testicular torsion, cryptorchidism, ectopic testicle

What can we say today about pollution and breastmilk?
Ce se poate spune azi despre poluare şi despre laptele de mamă?

Gabriela Zaharie[1], Nicoleta Bican-Brişan[2], Monica Hăşmăşanu[1], Daniel Mureşan[3], Melinda Matyas[1]

1. Neonatology Department, "Iuliu Haţieganu" University of Medicine and Pharmacy, Romania

2. "Babeş-Bolyai" University of Cluj-Napoca, Faculty of Environmental Science and Engineering, Romania

3. First Obstetric and Gynecology Department, "Iuliu Haţieganu" University of Medicine and Pharmacy, Romania

Background and aims. Breastmilk is the most natural nourichement; we expect to be pure, but it is invaded with a lot of chemical pollutants. We live in times when everything around us is polluted. The exposure to dichlorodiphenyltrichloroethane (DDT) affects the reproductive system and decrease the fertility; it can affect the quality of seminal fluid and it can also influence the period of gestation and the lactation. The intrauterine exposure at DDT/DDE increases the risk for growth anomalies. The exposure to DDE in the first trimester increases the risk for neurological disorders of the fetus. **Materials and method.** In this study, it was analyzed the human milk collected from different patients who lived in rural and urban areas of Cluj district. The milk samples were collected in sterile vials (40 mL) closed with teflon lined screw cap, fixed with 16 mg $K_2Cr_2O_7$ and kept at 4°C until analysis. After the analysis of milk sample on gas chromatography coupled quadrupole mass spectrometer detector (Focus GC – DSQ II MS, Thermo Electron Corporation) using selective ion monitoring methods and for the quantitative analysis of some organochlorine pollutants, the samples were analyzed also with gas chromatography equipped with ECD and FID detectors. **Results.** Different organic pollutants such as C_2HCl_3, C_2Cl_4, $CHCl_3$ and some isomers of $C_{14}H_9Cl_5$ such as $C_{14}H_8Cl_5$ were detected in the breastmilk samples. C_2HCl_3 (T_R: 1.29); $CHCl_3$ (T_R: 2.78); $CHCl_2Br$ (T_R: 4.11); $CHClBr_2$ (T_R: 5.21); C_2Cl_4 (T_R: 16.05); $C_{14}H_9Cl_5$ (T_R: 40.9) and $C_{14}H_8Cl_5$ (T_R: 43.48) were the most important pollutants found in breastmilk. The trichloroethene concentration was higher in mother's breast milk who lived in rural areas. Chloroform concentration was higher in mother's breast milk from urban areas. **Conclusions.** Breastmilk is contaminated with the pollutants found in the habitat area. These contaminates are suspected as being carcinogenetic for human beings, and represent a concern for public health authorities.

Keywords: pollutants, breast milk, newborn

Correlation between neonatal seizures and hypoxic-ischemic encephalopathy

Corelație între convulsiile neonatale și encefalopatia hipoxic-ischemică perinatală

Florina Doandeș[1,2], Aniko Manea[1,2], Oana Costescu[1,2], Nicoleta Lungu[1,2], Daniela Cioboată[1,2], Mărioara Boia[1,2]

1. "Louis Țurcanu" Emergency Clinical Hospital for Children, Timișoara, Romania

2. "Victor Babeș" University of Medicine and Pharmacy, Timișoara, Romania

Neonatal seizures are the most common neurological disorder in newborns and often the first sign of neurological dysfunction. They reflect a variety of pre-, peri- and postnatal disorders of central nervous system. The etiology of neonatal seizures is very heterogeneous. They commonly occur in the setting of an encephalopathy, most commonly due to hypoxia-ischemia. Hypoxia-ischemia may occur either acutely or chronically, and is most commonly associated with maternal factors (hypotension, severe hypoxia), cord factors (prolapse, occlusion), placental factors (insufficiency or abruption) and uterine factors (rupture). Neonatal events (shock, respiratory or cardiac arrest) can also lead to hypoxic-ischemic injury. Asphyxia has been shown to be the third most common cause of neonatal death, after preterm birth and severe infections. Neonatal encephalopathy – a frequent complication of asphyxia – is an important cause for neonatal seizures. We studied in our neonatal intensive care unit the cases of patients who had been admitted for neonatal seizures or who had experienced seizures in evolution, and their correlation with hypoxic-ischemic encephalopathy. The three most common etiologies of neonatal seizures are hypoxic-ischemic encephalopathy, ischemic stroke and intracranial hemorrhage. Hypoxic-ischemic encephalopathy is the most studied clinical condition, producing the most serious neurological sequelae. It is the leading cause of long-term neurological morbidity and an important cause of mortality.

Keywords: neonatal seizures, etiology, hypoxic-ischemic encephalopathy

Autoimmune diseases in pregnancy – management and neonatal outcome

Managementul bolilor autoimune la gravide și impactul neonatal

Andreea Boiangiu[1], Andra Bălănescu[2], Radu Vlădăreanu[1], Simona Vlădăreanu[1]

1. "Carol Davila" University of Medicine and Pharmacy, Department of Obstetrics-Gynecology and Neonatology, "Elias" University Hospital, Bucharest, Romania

2. "Carol Davila" University of Medicine and Pharmacy, Department of Internal Medicine and Rheumatology, "St. Mary" Clinical Hospital, Bucharest, Romania

Autoimmune diseases are chronic disorders in which there is an abnormal immune response directed at their own cells, systems and organs. Autoimmune diseases primarily affect females at fertile ages, thus affecting the fertility and the outcome of a future pregnancy. If until recently these pregnancies were contraindicated, with the emergence of new revolutionary treatments they are now possible. However, the central element to be taken into account is that these patients will have a pregnancy with increased maternal-fetal risk and will require a strict multidisciplinary monitoring. *Per se*, pregnancy induces a number of immunological changes, including an increase in complement level, a change in cell adhesion molecule expression, a decrease in CD4 cells, decreased IL2 production, and a decrease in NK cell activity. Also, the endocrinological storm during pregnancy, birth and postpartum, with dramatic changes in the levels of estrogen, progesterone, cortisol, norepinephrine and dehydroepiandrotestosterone, will potentiate the immunological changes. All these immunological adaptations are designed to accommodate the mother with the semialogenic fetus, but at the same time will lead to changes in the evolution of autoimmune diseases that will influence the maternal-fetal outcome. The maternal autoantibodies and some substances used as the primary treatment of the disease crossing the feto-placental barrier are the main concern of the perinatal medicine team. Also, knowing the bidirectional impact of the disease on the pregnancy and of the pregnancy on the disease will lead to a better maternal-fetal outcome.

Keywords: autoimmunity, autoantibodies, maternal-fetal outcome

Biological therapy in immune-mediated rheumatic diseases in pregnancy
Terapia biologică în bolile reumatice mediate imunologic în sarcină

Andra Bălănescu
MD, PhD, Associate Professor, Internal Medicine and Rheumatology Department, "St. Mary" Clinical Hospital, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

Most immune-mediated rheumatic diseases are more common in women than in men, with a higher prevalence in women of reproductive age. The pathogenesis of these diseases involves the immune and hormonal system, so the pregnancy's outcome can be influenced. Furthermore, pregnancy affects the inflammatory and immune processes. The management of these patients who want to become pregnant is a real challenge: before pregnancy (fertility, risk factors, forbidden drugs, comorbidities), during pregnancy (forbidden/permitted drugs, managing remission, flares) and after pregnancy (disease flares, breastfeeding, baby's outcome). Several medications may not be compatible with pregnancy, but recent data showed that effective treatment of active inflammatory rheumatic diseases (particularly with biological agents) is possible with reasonable safety, leading to important changes in the current management guidelines and standards of care. So, nowadays, pregnancy is possible for most patients with immune-mediated rheumatic diseases, and good outcomes can be expected for both mother and child. This became possible as a consequence of increasingly better monitoring and new treatment options of pregnant women with this pathology, and by the collaboration of an experienced multidisciplinary team.

Keywords: pregnancy, breastfeeding, rheumatic diseases, biologics

Enteral nutrition – determinant factor for an optimal growth of premature newborns
Nutriția enterală – factor determinant al optimizării creșterii la nou-născutul prematur

C. Angelescu-Coptil[1,2], D. Iacob[1,2], M. Pantea[1,2], G. Noditi[1], C. Ilie[1,2]
1. "Pius Brînzeu" Emergency Clinical County Hospital, Timișoara, Bega University Clinic, Romania
2. "Victor Babeș" University of Medicine and Pharmacy, Timișoara, Romania

The paper presents recent data regarding the conciliation between increased nutritional needs and structural-functional possibilities of the newborn in the postnatal period. Also, there are presented new results which target the initialization of enteral nutrition as soon as possible after birth, even for extremely-low-birth-weight (ELBW) premature babies who require total parenteral nutrition for a variable period of time. For premature newborns an early alimentation represents a trigger factor for the structural-functional development of digestive and metabolic processes. This factor has an essential contribution to the nutritional rehabilitation of the ELBW preterm and for minimizing postnatal growth restrictions. The postnatal growth of premature newborns is analyzed based on the holistic concept of 1000 days, a growth and development period which is rapid, unique and essential for the whole life. The nutritional deficiencies or errors in this time, beside postnatal growth restriction, can be determinant factors for some adult pathologies, such as diabetes, obesity and arteriosclerosis. It has been shown that these pathologies have their roots in the early stages of life, even in the fetal period. Based on this information and the recommendations from international committees, regarding the nutrition of premature babies, there are presented the main practical guidelines for nutritional needs and the ways to achieve them, based on human milk. In conclusion, it is clear that the fetal and postnatal period of preterm babies represents a critical milestone for the health of the future adult.

Keywords: enteral nutrition, premature babies

Human papillomavirus and the associated risk of prematurity
Virusul papiloma uman și riscul asociat de prematuritate

Simona-Daniela Popescu[1], Andreea Mădălina Bănică[2], Simona Vlădăreanu[3]
1. Neonatology MD, "Elias" University Emergency Hospital Bucharest, assis. prof., "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania
2. Resident in Neonatology, "Elias" University Emergency Hospital Bucharest, assis. prof., "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania
3. Neonatology MD, "Elias" University Emergency Hospital Bucharest, univ. prof., "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

There is a high heterogeneity among studies regarding the transmission of human papillomavirus (HPV) from the mother to the newborn, thereby there are currently no well-defined prevention and treatment protocols. It is known that HPV infection is the most common sexually transmitted disease in women and the major cause of cervical cancer. Recently, the purpose of the researchers was to identify the association between HPV infection and adverse pregnancy outcomes. It is considered that HPV infection of trophoblast induces placental dysfunction by preventing the attachment to the uterine wall and thus adverse obstetric outcomes, such as preterm delivery, spontaneous abortion and preeclampsia. It has been shown that decreased serum levels of plasma protein A during the first trimester of pregnancy are associated with an increased risk of premature birth. Regarding HPV vaccination, this has been shown to reduce the incidence of prematurity, but further studies are needed to evaluate the association between nine-valent vaccine and the risk of adverse pregnancy outcomes.

Keywords: human papillomavirus, placental dysfunction, prematurity, pregnancy adverse outcomes, HPV vaccine

Ivemark syndrome – a rare entity, with specific anatomical features

Sindromul Ivemark – o entitate rară, cu caracteristici anatomice specifice

Margareta Pîrvănoiu[1], Dana Hodiș[1], Bogdan Lucian[1], Adrian Hrușcă[2], Andreea Răchișan[2], Simona Manole[3], Simona Oprița[4], Simona Căinap[2]

1. "Constantin Opriș" Emergency County Clinical Hospital, Baia Mare, Romania

2. Pediatric Clinic II, Emergency Clinical Hospital for Children, Cluj-Napoca, Romania

3. Radiology and Medical Imagistic Laboratory, Emergency County Clinical Hospital, Cluj-Napoca, Romania

4. "Niculae Stăncioiu" Heart Institute, Cluj-Napoca, Romania

Introduction. Ivemark syndrome (IS) – or right atrial isomerism (RAI) – is known as a rare congenital condition, being the result of an anomaly in the embryonic period. It is usually associated with cardiac, splenic, pulmonary, hepatic anomalies, and abnormalities of other organs, being a common cause of death in newborns. **Aim of the study.** Ivemark syndrome is an embryological rare entity, resulting in cardiac anomalies and abnormalities of other organs associated with left-right isomerism, causing early infancy death. **Results.** We present the case of the first born from an unmonitorized pregnancy, with unknown gestational age, spontaneous birth, head presentation, ruptured membranes with three hours before birth, with opalescent liquid, IA =10/10, G =3030 g, who presents from the first day of life a left parasternal systolic murmur which is increasing and becomes audible at all focals, more pronounced on the right side. The heart and abdominal echography reveals and confirms a complete *situs inversus*, without being possible to see the spleen, MCC-CAVC. The baby is discharged from hospital at the request of the mother with the recommendation for further investigations at the universitary clinic, for diagnostic and therapeutic conduct. Two months after birth, he is hospitalized in the pediatric unit for acute respiratory insufficiency and weight loss, being transported to the Pediatric Clinic II from Cluj-Napoca. The laboratory examinations, CT and the angiography revealed dextrocardia with common atrioventricular canal Rastelli C, transposition of great arteries, anomalous pulmonary venous drainage, superior vena cava with aneurysmal dilatation, the liver median positioned, and the spleen was not visualized. **Conclusions.** Ivemark syndrome is a plurimalformative syndrome with the modification of the left-right axis. The result is a complex cardiac malformation and anomalies of thoracic and abdominal organs. Asplenism is the relevant element for the diagnosis. This condition is rarely seen in adults, because the mortality rate in these patients with RAI is high in the first year of life. The symptoms of Ivemark syndrome can vary widely, depending on the present specific anomalies. In this case, the patient died at the age of 3 months.

Keywords: congenital anomalies, heterotaxic syndrome, Ivemark syndrome, *situs inversus* with asplenism

Psychiatric and cognitive disorders in childhood and adolescence after preterm birth

Tulburările psihice şi cognitive în copilărie şi adolescenţă la foştii prematuri

V. Dima

"Filantropia" Clinical Hospital of Obstetrics and Gynecology, Bucharest, Romania

Very preterm or very-low-birth-weight (VLBW) born infants are at increased risk of long-term physical and psychological sequelae, including functional limitations and chronic health disorders. Recent advances in the care of premature infants have resulted in increasing rates of survival. However, the increased prevalence of medical disabilities, learning difficulties, and behavioral and psychological problems among surviving preterm infants have raised concerns that these infants may have difficulties in coping with adult life. The long-term social and behavioral outcomes of preterm birth are not well described. Most follow-up studies have focused on extremely premature infants (gestational age <28 weeks or birth weight <1000 g), but data on moderately premature babies, who comprise a larger proportion of preterm births, are also needed. While knowledge is accumulating from cross-sectional studies on brain structural deviations in VLBW, the impact of prematurity on normal dynamic changes in brain structure is still uncertain. The most common cerebral neuropathology in preterm infants is white matter injury and its accompanying effect on the overlying cerebral cortex and the deep gray matter nuclei. White matter damage causes abnormal neurodevelopment, with symptoms ranging from sensorimotor problems via neuropsychological impairments, to psychiatric conditions, leading to lower educational achievements. In this literature review, I tried to emphasize the long-term psychological and behavioral problems described in recent studies and meta-analyses about preterm infants. It is important to know what to expect when it comes to long-term complications of prematurity, because we can try to prevent some of them or at least improve the outcome.

Keywords: prematurity, follow-up, psychiatric disorders, behavior problems

Effects of maternal DHA supplementation on fetal and infant neurodevelopment

Efectele suplimentării materne cu DHA asupra dezvoltării neurologice fetale şi a copilului

Simona Vlădăreanu[1], Andreea Mădălina Bănică[2], Simona-Daniela Popescu[1], Gabriela Iordache[3]

1. Neonatology MD, "Elias" University Emergency Hospital, Bucharest, univ. prof., "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

2. Resident in Neonatology, "Elias" University Emergency Hospital Bucharest, assis. prof., "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

3. Resident in Neonatology, "Elias" University Emergency Hospital, Bucharest, Romania

Clinical data has proven that docosahexaenoic acid (DHA) has an important role during fetal and infant neurodevelopment. It was shown that the brain, which is a lipid organ, is mainly made up of lipids and half of them are known to be long-chain omega-3 polyunsaturated fatty acids. It is well know that DHA has an important effect on cognitive performance, because it is involved in neurogenesis, neurotransmission systems, cell survival, and not only. It is acquired *in utero* through placental transfer and through breast milk in infancy, and depends on the dietary intake of the mother. It has been proven that DHA maternal supplementation reduces the risk of preterm births, and lead to a better score in problem-solving tests and also in childhood IQ scores.

Keywords: DHA, neurodevelopment, maternal supplementation, childhood IQ

Bronchopulmonary dysplasia – news regarding diagnosis and therapy

Bronhodisplazia pulmonară – actualităţi diagnostice şi terapeutice

Valeria Filip

Faculty of Medicine and Pharmacy, University of Oradea, Romania

Introduction. Premature birth, especially when it occurs at a very early gestational age, is a critical moment in the pulmonary maturation, affecting the development of the alveolar capillaries, with significant long-term repercussions on the respiratory structure and function. Bronchopulmonary dysplasia (BPD) is the main long-term injury of premature infants with low birth weight, representing an important factor of mortality and morbidity for this category of newborns. This condition was first described in 1967 by Northway as a complication of the mechanical ventilation and high oxygen concentration used in respiratory distress caused by surfactant deficiency. This definition suffered multiple alterations during the past four decades. Banclarai et al. includes the necessity of mechanical ventilation use, or supplemental oxygen requirement after 28 days of life, and Shennan et al. state that supplemental oxygen requirement at 36 gestation week is a precise indicator for the outcome of chronic lung disease. The diagnosis criteria according to the NICHD (National Institute of Child Health and Human Development from USA) consensus from 2001 have as novelty the degree of prematurity and severity of respiratory distress. The definition, diagnosis, outcome and epidemiology, as well as understanding the physiopathological mechanism of this condition have evolved considerably in the last decades, although without having at this present time therapeutic measurements that are efficient both from a prophylactic standpoint, as well as curative. Considering that the number of extremely premature and their survival have grown, BPD has become a real health issue, as this condition is not only associated with a significant respiratory morbidity, but also with a neurological and cognitive one, throughout childhood. **Objectives.** We are looking to revise and update the etiopathogenesis, the diagnosis and new preventive and therapeutic measurements in BPD. **Materials and method.** Premature birth is often associated with a high risk of clinical conditions and challenges, especially when there is a very early gestational age. BPD incidence in premature infants with less or equal to 28 weeks of gestation has been relatively stable in the last decades, to around 40%. NICHD indicates a prevalence of 69% between 2003 and 2007 among premature infants born between 22 and 28 weeks of gestation (27% mild; 23% moderate; 18% severe). BPD is the result of a complex process in which most pre- and/or postnatal factors interfere with the development of the inferior respiratory tract, leading to a severe lung injury. The physiopathogenesis of this condition is complex and poorly understood. BPD is the result of more toxic factors that exert an effect on the small respiratory passageways and alveoli, reducing the bioavailability surface for gas exchange. At the same time, the pulmonary microcirculation can also be affected. There is a strong link between the development of pulmonary circulation and alveoli, so when one is affected, at any given time during fetal life, it can consequently cause a significant pulmonary dysfunction. However, despite any performant therapeutic technique and also improvement of the premature care, the BPD rate was not significantly altered, which might be because of the existent genetic risk factors associated, explaining the multifactorial etiology of the disease. In the future, identifying susceptibility genes would not only contribute to a better understanding of the physiopathology of this condition, but would also aid in identifying new therapies. **Conclusions.** Bronchopulmonary dysplasia is a respiratory condition occurring in premature infants, resulting in chronic respiratory problems. Although understanding the pathogenesis of BPD has evolved significantly over the past few years, not every mechanism that leads to lung injury is fully understood, explaining why therapeutic approaches that are efficient in theory were only partially satisfying or useless, and in some cases they can cause harm. Despite all these, the prevention of premature birth, using ventilation that is not aggressive, pre- and postnatal corticotherapy, the administration of surfactant, caffeine, and an adequate nutrition can significantly lower the risk of developing BPD. Perhaps, in the future, cellular therapy will become the new method for approaching lung injuries caused by BPD and correcting a condition that has such major repercussions during childhood and later in life.

Keywords: bronchopulmonary dysplasia, prematurity, oxygen therapy

Risk factors and evolution of bronchopulmonary dysplasia in preterm neonates
Factorii de risc şi evoluţia displaziei bronhopulmonare la nou-născutul prematur

M. Mátyás
Department of Neonatology, "Iuliu Haţieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

Bronchopulmonary dysplasia (BPD) is a chronic complication of preterm neonates. Alongside retinopathy of prematurity and periventricular leukomalacia, it is one of the major chronic complications found in premature babies. Bronchopulmonary dysplasia is a chronic lung disease characteristic of preterm neonates who present with respiratory distress syndrome requiring long-term mechanical ventilation and oxygen therapy. The incidence of the disease described by Northway in 1967 has significantly decreased over the past years due to the implementation of antenatal corticoids, surfactant treatment, and the use of non-invasive respiratory support at birth instead of invasive mechanical ventilation. The new form of the disease, characterized by lesions during the saccular stage, an early stage of lung development when alveoli begin to differentiate, occurs in preterm infants who require oxygen supplement and mechanical ventilation. The disease also develops in patients exposed to oxygen therapy at FiO_2 of 22-30%, for a long time period. The complex, multifactorial etiology of the disease is based on small gestational age, organ immaturity associated with a series of other favoring neonatal factors, such as mechanical ventilation, oxygen therapy, deficient nutritional status, neonatal asphyxia, neonatal sepsis, and intraventricular hemorrhage. In addition to the particularities of development of preterm newborns, maternal pathology plays an important role in the pathogenesis of the disease. Among maternal disorders, preeclampsia and chorioamniotitis are of particular importance. **Objectives.** The aim of the current study was to analyze the risk factors for bronchopulmonary dysplasia in patients admitted to our service, as well as to assess the disease prevalence among the population of premature babies in our geographical area. The role of risk factors associated with prematurity in the pathogenesis of the disease was also investigated. **Materials and method.** A descriptive, observational, longitudinal study was conducted in the Department of Neonatology I of the County Clinical Emergency Hospital of Cluj-Napoca, in the period 2014-2016. During the studied period, of the 264 preterm neonates born at less than 32 weeks, 38 developed bronchopulmonary dysplasia. The diagnosis of bronchopulmonary dysplasia was based on oxygen dependence at the age of 36 weeks post-conception or at the age of 28 postnatal days. The data were processed and centralized using Microsoft Office Excel 2013 software. The differences between the tested variables were considered statistically significant at a value of $p<0.05$. For the use and processing of data from the patients included in the study, the parents' informed consent was obtained. **Results.** In the study group, 31 cases developed bronchopulmonary dysplasia, 18 preterm neonates had retinopathy, and 11 presented both complications. Twenty-four (63.2%) of the preterm babies were born in the Clinic of Obstetrics and Gynecology I, and 14 (36.8%) were admitted by transfer from other medical services. The prevalence of bronchopulmonary dysplasia in the studied period was 11.07%. Twenty-two newborns in the study group received antenatal corticosteroid prophylaxis. Thirty neonates were administered surfactant for RDS therapy. In 23 cases, resuscitation measures at birth were initiated for different degrees of asphyxia. Conventional mechanical ventilation was used for 30 neonates in the study group. The length of mechanical ventilation expressed in hours ranged between 24 and 1704 hours (1 day to 71 days), with a median of 216 hours and a mean of 343.20±395.8 (95% CI; 195.4-490.99). The association between mechanical ventilation and bronchopulmonary dysplasia had OR=9 and Phi=0.42, as well as $p=0.010$ – Hi2 test ($p<0.05$), being statistically significant. In the study group, one death was recorded.

Conclusions:

1. The incidence of BPD was correlated with the length of mechanical ventilation.
2. Asphyxia at birth had a significant influence on BPD incidence in the studied group.
3. Immediate evolution was favorable in the majority of the study group cases (89.5%).

Keywords: prematurity, bronchopulmonary dysplasia, risk factors

Hypoglycemia – a perinatal issue for fetus and neonate
Hipoglicemia – un risc fetal şi neonatal

C. Poalelungi[1,2], Mihai Andrada[1,4], D. Stegaru[1,4], C. Posea[2], Mariana Marţian[3], C. Guja[1,4], Iuliana Ceauşu[1,2]
1. "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania
2. "Dr. I. Cantacuzino" Clinical Hospital, Obstetrics and Gynecology Department, Bucharest, Romania
3. "Dr. I. Cantacuzino" Clinical Hospital, Neonatology Department, Bucharest, Romania
4. "N Paulescu" Institute of Diabetes Mellitus, Nutrition and Metabolic Diseases, Bucharest, Romania

The underlying mechanisms of neonatal hypoglycemia in at-risk neonates who usually require intervention (pathologic or persistent) include inadequate glucose supply, due to inadequate glycogen stores or impaired glucose production, and increased glucose utilization, due to excessive insulin secretion or other causes. The pathologic neonatal hypoglycemia cannot be defined by a precise numerical blood glucose concentration because of the lack of outcome data that accurately identify a threshold level of blood glucose at which intervention should be initiated to prevent morbidity. A clinical diagnosis of neonatal hypoglycemia is important to provide guidance for when and if therapy should be initiated to increase blood glucose levels.

Keywords: hypoglycemia, fetal difference, neonatal period, perinatology

Automatic analysis of the newborn's crying
Analiza automată a plânsului nou-născutului

Gheorghița Sărdescu[1], Cristina Maria Coman[1], Cristina Ialomița Popescu[1], Adriana Sbârcea[1], Elvira Brătilă[2], Mircea Sorin Rusu[3], Diana-Elena Comandașu[2]

1. Department of Neonatology, "St. Pantelimon" Emergency Clinical Hospital, Bucharest, Romania

2. Department of Obstetrics and Gynecology, "Carol Davila" University of Medicine and Pharmacy, Bucharest; "Prof. Dr. Panait Sîrbu" Clinical Hospital of Obstetrics and Gynecology, Bucharest, Romania

3. R&D Department, S.C. SOFTWIN SRL, Bucharest, Romania

Crying is the first human communication and the most important way of transmitting newborn's needs. Our study describes the newborn's crying analysis system and the association with physical needs. It included newborns with a gestational age at birth ≥34 weeks, and chronological age (or corrected age for premature babies) ≤3 months. The specialty literature identifies six types of crying in healthy newborns, associated with different physiological needs (hunger, pain, postprandial or belching, fatigue or sleep, minor discomfort and abdominal colics) and pathological crying. For each type of crying, we identified: the stimuli applied to the subject to produce the crying, the moments of time in which the likelihood of appearance is highest, or any links between different types of crying. Crying was acquired in the hospital and at home, and data acquisition was performed by specialized personnel (in the nursery) or parents (at home). The information was noted for each record of crying: the need causing crying, age, time of the acquisition, location (hospital or home), date, interval from the last meal, type of diet (milk or formula), interval from the last sleep (depending on the sleeping and waking pattern). Out of 326 eligible newborns, we obtained the informed consent in 136 cases (39%), 92 for hospital monitoring, respectively 44 also for home recording. From the newborns included, 89.7% were term appropriate for gestational age (AGA) babies, and 10.3% from other categories (small for gestational age, large for gestational age, premature, postmature). 80% were healthy newborns, the rest presenting different pathologies: respiratory (11%), neurological (5%), metabolic (2%), infectious (1%), malformations (1%). We recorded 758 crying episodes in the hospital (78%) and 212 at home (22%). The needs associated with crying were: hunger (39% in the hospital vs. 56% at home), minor discomfort (19% in the hospital vs. 15% at home), pain (33% in the hospital vs. 1% at home), pathological crying (5% in the hospital vs. 2% at home), abdominal colics (1% in the hospital vs. 9% at home), postprandial or belching (3% in the hospital vs. 4% at home) and fatigue (13% at home). We created a database including the seven types of crying, in different percentages, according to the cause and the acquisition location. This database is useful in identifying the cause of crying in newborns and can be a source in subsequent studies.

Keywords: newborn crying, physiological needs, automatic analysis

Perinatal stroke – a case report
Stroke-ul neonatal – prezentare de caz

Adriana Tecuci[1,2], Simona Vlădăreanu[1,2], Alexandra Popa[2]

1. "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania

2. "Elias" University Emergency Hospital, Bucharest, Romania

Arterial stroke is an event that may occur at any age, the perinatal age being considered the second most common for this pathology. The definition of neonatal arterial stroke as a subtype of this pathology is determined by the time it sets, from 20 weeks of gestation to 28 days postpartum. It is difficult to know precisely the exact timing of perinatal stroke and the chronology of pathophysiological sequences, though a higher incidence of neonatal stroke is found at the end of the third trimester, especially during labor. MRI is the main investigation which establishes accurately the time when the lession was produced. In the case of early antenatal lesions, the clinical manifestations include impaired consciousness of the baby, respiratory problems and frequent seizures. For example, in case of perinatal stroke, the newborn will not be symptomatic at birth, having high Apgar score and late onset of clinical impairment associated with focal neurological signs. The etiology is multifactorial, and many studies are associating the arterial stroke with intrapartum events, such as prolonged ruptere of membranes, maternal fever and tight nucal cord, prothrombotic conditions in both mother and infant, and also vascular pathology of the placenta. This study reports the case of a female newborn (AGA, GA ≥38 weeks), from a monitored pregnancy, without significant pathology, via planned caesarean delivery, in the absence of labour, with Apgar score of 9 at one minute, and which at 20 hours of life presented clonic seizures of right hemibody. The neurological examination and the paraclinical investigations (transfontanellar ultrasounds, MRI, EEG) have confirmed the perinatal stroke diagnosis. Currently, at 4 months, the neurological and motor development of the baby is appropiate for this age, with a minor deficit in the right arm.

Keywords: stroke, neonatal seizures, seizures, magnetic resonance imaging