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MEDICINE AND PHARMACY IASI

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JORDANIAN PHYSICIANS  
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# CORIMF 2019

Romanian-Jordanian Congress of Medicine and Pharmacy

**10<sup>th</sup> Edition** September 10-17, 2019 | Iasi, Romania

## PROGRAM & ABSTRACTS VOLUME



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## GRIGORE T. POPA UNIVERSITY OF MEDICINE AND PHARMACY





# GENERAL PROGRAM

## **Tuesday, September 10, 2019**

Arrival of guests from Jordan

## **Wednesday, September 11, 2019**

University Tour (Faculties, Anatomy Institute, University's Museums)

## **Thursday, September 12, 2019 | „George Emil Palade” Auditorium**

10.30 - 11.00 – Registration. Handing out the Congress materials.

11.00 – 13.00 – Official Opening of Romanian-Jordanian Congress of Medicine and Pharmacy

13.00 – 14.30 – Lunch break

14.30 – 17.30 – Session I – oral presentations

19.00 – 21.00 – Festive Dinner (offered by "Grigore T. Popa" University of Medicine and Pharmacy)

## **Friday, September 13, 2019 | „George Emil Palade” Auditorium**

10.00 – 13.00 - Session II – oral presentations

13.00 – 15.00 – Coffee break

15.00 – 18.00 - Session III – oral presentations

## **Saturday, September 14, 2019 | „George Emil Palade” Auditorium Hall**

10.00 – 13.00 - Session IV – posters

13.00 – 15.00 – Coffee break

15.00 – 18.00 – Session V – posters

## **Sunday, September 15, 2019 | „George Emil Palade” Auditorium Hall**

10.00 – 13.00 - Session VI – posters

13.00 – 15.00 – Coffee break

## **Monday, September 16, 2019**

10.00 – 12.00 – Closing session CORIMF 2019

16.00 – Visit in Iași (Palace of Culture, „Trei ierarhi” Church, Botanical Garden etc)

## **Tuesday, September 17, 2019**

Departures





## THE UNIVERSITY OF JORDAN





## SCIENTIFIC PROGRAM

**THURSDAY, SEPTEMBER 12, 2019**

**"George Emil Palade" Auditorium**

**14.30-17.30 - Session I – oral presentation**

**Moderators: Prof. Dr. Viorel Scripcariu, Prof. Dr. Ioana Grigoraș**

1. *Abdelkarim Aloweidi Al-Abbadi, Hesham Albabtain, Peter Kimme.* Experience with Propofol sedation in pediatric radiotherapy at KFSHRC SA
2. *Abdelkarim Aloweidi, Sami Abu Halaweh, Muath Smadi, Nisreen Nadi, Mohamed Nawfal.* Cardiac stab wound management
3. *Faten Al-Awaysheh, Nisreen Alhmaiedeen, Raeda Al-ghananim, Areej Bsharat, Mohammad AL-Hasan.* Criteria for using INSURE in management of premature babies with respiratory distress syndrome
4. *Ali I Elmoumani.* The correlation between serum levels of vitamin D in developing multiple sclerosis
5. *Ali I Elmoumani, Baha' Abu Salma.* The ketogenic diet and epilepsy. Nutritional aspects
6. *Dragoș Viorel Scripcariu, Ionuț Huțanu, Bogdan Filip, Maria-Gabriela Aniței, Mihaela-Mădălina Gavrilescu, Ana-Maria Mușină, Mihaela Buna-Arvinte, Gianina-Vanda Moraru, Adrian Pănuță, Sadiye- Ioana Scripcariu, Viorel Scripcariu.* The role of anorectal manometry in the evaluation of anal sphincter tonus.
7. *Ioana Grigoraș.* Patient blood management.
8. *Angela Vînturache.* The burden of obesity in pregnancy

## FRIDAY, SEPTEMBER 13, 2019

"George Emil Palade" Auditorium

### 10.00-13.00- Session II – oral presentation

**Moderators:** Prof. Dr. Adrian Covic, Prof. Dr. Lăcrămioara Șerban, Prof. Dr. Irina Draga Căruntu

1. *Faten Al-Awaysheh*. Transitional neonatal hypoglycemia
2. *Alladin Alamad*. An unusual foreign body in the nose
3. *Mohammad Omar Abu Zaid*. Multiple congenital contractures (MCC's)
4. *Mazen Mohammed Kurdieh*. Correction of hallux valgus. Experience in Islamic Hospital
5. *Rami Khalil Harb, Laura Abaid*. Stress urinary incontinence approach and management
6. *Emilia Pătrășcanu, Irina Ristescu, Crina Tiron, Adrian Tiron, Paula Postu, Eugen Carasevici, Delia Negrescu, Ioana Grigoraș*. Expresia izoformelor Akt sub influența Sevofluran, în cancerul de sân uman – studiu experimental
7. *Hussien Hani, Teodor Iuliana, Mircea Gabriel, Apetrii Mugurel, Covic Adrian*. Frailty, cognitive function and health-related quality of life in the geriatric population diagnosed with advanced chronic kidney disease
8. *Ioana Alexandra Sandu, Ramona Ștefăniu, Irina Mihaela Abdulan, Nicoleta Lefter, Anca Iuliana Pîslaru, Adina Carmen Ilie, Ovidiu Alexa, Ioana Dana Alexa*. Psychological resilience vs. physical resilience in post-hip fracture recovery period in senior patients.

## SCIENTIFIC PROGRAM

**FRIDAY, SEPTEMBER 13, 2019**

*"George Emil Palade" Auditorium*

**15.00-18.00- Session II – oral presentation**

**Moderators: Prof. Dr. Luminița Smaranda Iancu, Prof. Dr. Beatrice Gabriela Ioan**

1. *Grigore Tinică, Mihail Enache, Raluca Ozana Chistol, Andrei Tăruș, Cristina Furnică.* Transcatheter aortic valve implantation complications – early diagnosis, therapeutic management and prevention
2. *Lavinia Caba, Monica Cristina Pânzaru, Roxana Popescu, Lăcrămioara Butnariu, Setalia Popa, Irina Resmeriță, Cristina Rusu, Eusebiu Vlad Gorduza.* Genetica ceasului biologic și implicațiile în patologie
3. *Ramona Gabriela Ursu, Cătălina Mihaela Luca, Odette Popovici, Doina Azoicăi, Luminița Smaranda Iancu.* Evaluation of HBV genotypes circulation on different categories of Romanian patients
4. *Tamaș Camelia, Pintilie Cătălina Teodora, Andor Iuliana, Dobre Costel, Tecuceanu Angela, Tamaș Ioana, Moraru Dan Cristian.* Local flaps in surgical reconstruction of the post-tumoral nasal defects
5. *Isabela Ioana Loghin, Carmen Mihaela Dorobăț, Carmen Manciu.* Infecția cu *Clostridium Difficile* – update privind infecțiile asociate îngrijirilor medicale
6. *Irina Iuliana Costache.* Un alt tip de infarct miocardic acut – MINOCA
7. *Elena Toader.* Dimensiunea etică a diversității culturale în educația medicală
8. *Mârțu Maria Alexandra, Gamen Andra, Sufaru Irina, Hurjui Loredana Liliana, Toma Vasilica, Rezuș Elena, Forna Norina Consuela.* Principal cytokines influencing periodontal disease and rheumatoid arthritis



9. *Stoleriu Simona, Iovan Gianina, Pancu Galina, Nica Irina, Georgescu Andrei, Tofan Nicoleta, Andrian Sorin.* Remineralization of incipient acute and chronic caries lesions using self-assembling peptides: an *in vitro* study

10. *Livia Bobu, Iulia Săveanu, Lucia Bârlean, Carina Balcoș, Magda Bârlean, Alice Murariu.* Study on the impact of socio-economic status on healthy behaviors concerning oral hygiene of first grade school children in Iasi, Romania

11. *Oana Cioancă, Monica Hăncianu.* The chemical link between theory and research in aromatherapy

12. *Profire Lenuța, Confederat Luminița, Avram Mihaela Iustina, Iacob Andreea Teodora.* Preparation and characterization of new bioactive and biomimetic polymeric membranes

13. *Constantin Munteanu, Mădălina Poștaru, Anca Irina Galaction.* The Use of Fluorescence Microscopy for Evaluation of *Saccharomyces Cerevisiae* cells destruction.

14. *Ilie Onu, Anca Irina Galaction.* Combined therapy in limiting the evolution of the knee osteoarthritis with quadriceps muscle training and intra-articular infiltration of the knee with hyaluronic acid

## SCIENTIFIC PROGRAM

**SATURDAY, SEPTEMBER 14, 2019**

*"George Emil Palade" Auditorium Hall*

**10.00-13.00- Session IV – posters**

**Moderators: Prof. Dr. Manuela Ciocoiu, Prof. Dr. Lenuța Profire**

1. *Yahia Arabyat*. Hypercholesterolemia in diabetes.
2. *Alexandra Lăcătușu, Ioana Mihai, Cristina Vasilescu, C. Eva, Manuela Stefan, Carmen Manciu*. Toxic hepatitis- a differential diagnosis challenge?!
3. *Cristina Furnică, Lăcrămioara Perianu, Gabriela Dumăchița Sargu, Alexandra Cristina Rusu, Grigore Tinică*. Sudden cardiac death after coronary artery bypasses grafting to the left anterior descending artery
4. *Nicoleta Anton, Anisia Iuliana Alexa, Alina Cantemir, Roxana Elena Ciuntu, Dorin Chiselică, Filip Tîrcoveanu, C. Anton, C. Lisa, Camelia Margareta Bogdanici*. Predicția progresiei hipertensiunii intraoculare la glaucoma cu ajutorul rețelelor neuronale artificiale
5. *Monica-Cristina Pânzaru, Roxana Popescu, Dana Teodora Anton-Păduraru, Lăcrămioara Ionela Butnariu, Lavinia Caba, Setalia Popa, Irina Resmeriță, Eva Gavril, Mihaela Dănilă, Eusebiu Vlad Gorduza, Cristina Rusu*. Necesitatea screeningului neonatal în fibroza chistică - mutațiile F508del și 1677delTA
6. *Irina Resmeriță, Eusebiu Vlad Gorduza, Sebastian Cozma, Roxana Popescu, Eva Cristiana Gavril, Lavinia Caba, Setalia Popa, Lăcrămioara Butnariu, Monica Pânzaru, Cristina Rusu*. Tulburările de auz și malformațiile urechii în spectrul oculo-auriculo-vertebral
7. *Alexandra Lăcătușu, Ioana Mihai, Cristina Vasilescu, C. Eva, Manuela Stefan, Carmen Manciu*. Quo vadis- *Clostridium difficile*.
8. *Roxana Chiriță, Ilinca Untu, Vasile Chiriță*. Repere în evoluția conceptului bio-psiho-social și relevanța acestuia în practica psihiatrică



9. *Radu Mădălina Elena, Iosip Bogdan, Pintilie Cătălina, Tamaș Camelia.* Extensive melolabial flap as a final reconstruction option of nasal defect due to facial carcinomatosis

10. *Iosip Bogdan, Radu Mădălina Elena, Popa Clara Larisa, Tamaș Camelia.* Negative-Pressure Wound Therapy (NPWT) – Successful alternative method in full-thickness burn of the feet

11. *Indrei Lucian Laurențiu, Petrariu Florin Dumitru, Foia Iolanda, Martinescu Gabriela, Albu Adriana.* Aprecierea oboselii școlare la un lot de adolescenți de la Colegii Tehnice din zona Moldovei

12. *Popa Clara Larisa, Munteanu Ioana, Tamaș Ioana, Marcovici Ilan, Robul Alexandru, Diaconu Oana, Atănăsoae Ionuț-Vivi, Moraru Dan Cristian, Radu Cezar Doru, Tamaș Camelia.* The successful use of NPWT and topicals in the management of lower limb trophic venous ulcers: case presentation

13. *Tamaș Camelia, Pintilie Cătălina Teodora, Andor Iuliana, Dobre Costel, Tecuceanu Angela, Tamaș Ioana, Moraru Dan Cristian.* Local flaps in surgical reconstruction of the post-tumoral nasal defects

14. *Jemnoschi-Hreniuc Irina-Mihaela, Stamate Teodor, Moraru Marius, Stătescu Gabriel, Luca Cristina, Tamaș Camelia.* Concepts of peripheral nerve regeneration and repair with nerve grafts. A personal experience

15. *Andreia Corciovă, Ana-Flavia Burlec, Cornelia Mircea, Cristina Tuchiluş, Adrian Fîfere, Oana Cioancă, Monica Hăncianu.* Extractele din plante – mediatori în sinteza verde a nanoparticulelor de argint

16. *Irina Macovei, Valeria Harabagiu, Liviu Săcărescu, Petronela Pascariu, Alina Diaconu, Cristina Lungu, Bianca Ivănescu, Ana Clara Aprotosoae, Anca Miron.* Green synthesis of silver nanoparticles using conifer bark extracts and their potential applications

## SCIENTIFIC PROGRAM

**SATURDAY, SEPTEMBER 14, 2019**

**"George Emil Palade" Auditorium Hall**

**15.00-18.00- Session V – posters**

**Moderators: Prof. Dr. Monica Hăncianu, Conf. Dr. Irina Costache**

1. *Diana Al khazaleh, Oxana-Mădălina Grosu, Petru Ciobanu, Alice Alexandra Chirilă, Mihaela Perțea.* Efficiency of hirudotherapy (medical leech therapy) in plastic surgery
2. *Maria Obreja, Claudia Elena Pleșca, Diandra Miftode, Oana Stămăteanu, Andrei Vâță, Mihnea Hurmuzache, Olivia Dorneanu, Larisa Miftode, Daniela Leca, Egidia Miftode.* Meningita nosocomială – dificultăți de tratament
3. *Hurjui Ion, Hurjui Loredana Liliana, Tărniceriu Claudia Cristina, Delianu Carmen, Grădinaru Irina.* Solvent influence on the electronic spectra of 1,6-Diphenyl-1,3,5-Hexatriene in ternary solutions: striking features
4. *Albu Adriana, Albu Mihai, Ghica Dragoș Cătălin, Indrei Lucian Laurențiu.* Aprecierea obiceiurilor alimentare ale unui lot de adolescenți din mediul rural
5. *Dana-Teodora Anton-Păduraru, Ștefana Cristina Dupa, Ana Simona Bocec.* Vaccinările în managementul bolnavului cu fibroză chistică (mucoviscidoză)
6. *Ioana Armașu, Delia Gabriela Ciobanu, Victor Ianole, Veronica Mocanu, Ioana Hristov, Ioana Vasiliu, Cristian Lupașcu, Dragomir N. Serban, Cristina Preda, Ionela Lăcrămioara Serban.* Aromatase expression in invasive breast cancer – is it useful?
7. *Roxana Mihaela Barbu, Ionuț Răducu Popescu, Cristina Maria Gavrilesu, Crînguța Paraschiv, Daniela Ababei, Manuela Ștefan.* Corelația între stresul oxidativ și sindromul metabolic
8. *Georgiana Enache-Leonte, Mihnea Hurmuzache, Mihaela Cătălina Luca, Egidia Miftode, Larisa Miftode, Tudorița Parângă, Daniela Leca.* Evoluția morbidității în



meningita cu virusul West Nile în Spitalul Clinic de Boli Infecțioase Sfânta Parascheva Iași

9. *Alexandra Mirela Ciocan, Ioana Hunea, Ioana - Alina Harja -Alexa, Raoul-Vasile Lupușoru, Mihnea Hurmuzache.* Hepato-renal syndrome to a patient with comorbidities

10. *Stefan Manuela, Vasilescu Cristina, Lăcătușu Alexandra, Eva C, Nistor Irina, Manciu Carmen.* Exantemul la adolescent și adultul tânăr

11. *Isabela Ioana Loghin, Carmen Manciu, Carmen Mihaela Dorobăț.* Infecțiile asociate îngrijirilor medicale - update privind infecția cu *Clostridium difficile*

12. *Manuela Ștefan, C. Eva, Ioana Florina Mihai, Vasilescu Cristina, Alexandra Lăcătușu, Irina Nistor, Carmen Manciu.* Influenza - o problemă de sănătate publică în sezonul rece

13. *Mădălina-Mihaela Gavrilesu, Ionuț Huțanu, Bogdan Filip, Maria-Gabriela Aniței, Ana-Maria Mușină, Mihaela Buna-Arvinte, Nicolae Ioanid, Iulian Radu, Adrian Pantazescu, Vanda Moraru, Adrian Pănuță, Alexandra Onișoru, Dragoș Viorel Scripcariu, Viorel Scripcariu.* Hindgut and midgut neuroendocrine tumors - therapeutic attitude

14. *Șadiye-Ioana Scripcariu, Andreea Luciana Avasiloaiei, Mihaela Moscalu, Maria Stamatina.* The intrauterine growth restricted neonate – epidemiological issues, immediate outcome

15. *Gabriela Tătăringă, Cornelia Mircea, Monica Hăncianu, Ana-Maria Zbancioc* Evaluation of antioxidant activity of some pyridazinic derivatives

16. *Oana Cioancă, Cornelia Mircea, Silvia Robu, Iancu Cristina, Ana Flavia Burlec, Adriana Trițan, Andreia Corciovă, Denisa Batir Marin, Monica Hăncianu.* Evaluarea activității biologice a unor extracte selective cu implicații în prevenția infecțiilor urinare

## SCIENTIFIC PROGRAM

**SUNDAY, SEPTEMBER 15, 2019**

*"George Emil Palade" Auditorium Hall*

**10.00-13.00- Session VI – posters**

*Prof. Dr. Norina Consuela Forna, Prof. Dr. Anca Irina Galaction*

1. *Diana Cimpoeșu, Paul Nedelea.* Winter conditions in Romania. The particularities of the emergency medical intervention
2. *Tărniceriu Claudia Cristina, Hurjui Loredana Liliana, Hurjui Ion, Delianu Carmen, Grădinaru Irina.* Homecare services for patients with Hemophilia – practices challenges and perspectives
3. *Lăcrămioara Butnariu, Monica Pânzaru, Cristina Rusu, Eusebiu Vlad Gorduza.* Expresivitatea variabilă în cazul unei familii cu neurofibromatoză tip 1
4. *Tudor-Ștefan Rotaru.* How can Plato be relevant for contemporary medicine?
5. *Adumitroaie Alina, Toma Vasilica, Gamen Andra, Cioloca Daniel, Mârțu Alexandra, Savin Carmen, Foia Liliana.* Evaluating oral and dental health management for pediatric patients undergoing cancer treatment
6. *Sorin Andrian, Iovan Gianina, Simona Stoleriu, Ghiorghe Angela, Pancu Galina.* Strategii terapeutice actuale în managementul bolii carioase
7. *Maștei George Alexandru, Iovan Alexandru, Cioloca Daniel, Gelețu Gabriela, Costuleanu Marcel, Toma Vasilica, Foia Liliana.* Alveolar bone healing through the OPG/RANKL system in the context of systemic conditions
8. *Grădinaru Irina, Hurjui Ion<sup>2</sup> Tărniceriu Claudia Cristina, Carmen Delianu, Hurjui Loredana.* The implications of the optical properties in the aesthetical success of the oral rehabilitations
9. *Carmen Delianu, Loredana Liliana Hurjui, Claudia Cristina Tărniceriu, Hurjui Ion, Grădinaru Irina, Liliana Foia.* Involvement of laboratory specialists in reducing pre-analytical errors



10. *Daniel Marciuc, Carmen Savin, Laura Gavrilă, Alexandra Mârțu, Emilia Adriana Marciuc, Vasilica Toma.* Abordarea fracturilor coronaro-radiculare a dinților permanenți la copii – prezentare de caz

11. *Ioana Duceac, Raluca Vulpe, Andreea Luca, Laura Rășcanu, Ovidiu Bredețean, Maria Butnaru, Liliana Vereștiuc.* Bioinspired multi-sensitive scaffolds for soft tissue engineering and regenerative medicine

12. *Vera Balan, Gianina Dodi, Maria Butnaru, Liliana Vereștiuc.* Development and *in vitro* evaluation of nanosystems as drug delivery platform for breast cancer therapy

13. *Florina Daniela Cojocaru, Vera Balan, Ionel Marcel Popa, Anca Munteanu, Maria Butnaru, Liliana Vereștiuc.* Magnetic scaffolds based on biopolymers and calcium phosphates with insertion of SPIONs for bone treatment and regeneration

14. *Corina Cheptea, Valeriu Sunel, Anca Irina Galaction, Mădălina Poștaru, Marin Zagnat.* Synthesis of a new amidic compounds derived from 6-nitro-benzimidazole and a study on their biological action

15. *Daniela Matei, Elvina Mihalaș, Ionela Lăcrămioara Șerban, Anca Irina Galaction.* Correlations between oxidative stress and the effect of physical activity.

16. *Mădălina Poștaru, Alexandra Tucaliuc, Dan Cașcaval, Anca-Irina Galaction.* Production and separation of 7-aminocephalosporanic acid



# **CORIMF 2019**

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## **Abstracts**

### **ORAL PRESENTATIONS**



# CORIMF 2019

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**Experience With Propofol Sedation in pediatric radiotherapy at KFSHRC SA***Abdelkarim Aloweidi Al-Abbadi<sup>1</sup>, Hesham Albabtain, Peter Kimme**<sup>1</sup>The University of Jordan, Amman, Department of Anaesthesia and Intensive Care*

Radiation is most accurate treatment in medicine, under-dosage will lead to treatment failure and over dosage will lead to complications. Patients can be in supine and prone position for children this condition is not tolerated so sedation is essential part of pediatric radiation therapy. The use propofol sedation will be repeated 5 days per week for several weeks in outpatient basis, it has hazards on nutritional status being exacerbated by malaise and anorexia induced by radiotherapy and sometimes chemotherapy, simulation can be used even without sedation in cooperative children as well as radiotherapy, but also we have to be ready for intermittent sedation or continuous infusion sedation in majority of children, which is easy in supine position and difficult in prone position patients are usually followed by the oncologists and central line will be established early for chemotherapy, then will be referred to radiotherapist, and they will write their plan of radiation and localize exactly the area site of radiation and entered for each patient with details in the computer system. Sedation procedure: after taking maximal cautions and alertness and preparing emergency drugs and tubes, suction, LMA, etc. and checking anesthesia machine and system with monitoring the patients we use injectable propofol through established central line with a dose of 2 -5 mg per kg slowly to minimize respiratory depression and side effects then we can give incremental dosage 10-20 mg every 5-10 minutes as sedation is needed for short procedures, or to keep the patient in continuous pump infusion 50-100 Mcg /kg/min according to the patient need in long plan radiation or simulation. At the end of infusion procedure, patient will be transfer with O2 and monitoring to the recovery room and kept till full recovery and discharged according to criteria of discharge.

Conclusion: In our experience at KFSHRC (King Faisal Specialist Hospital and Research Centre in Riyadh KSA (Saudia) radiotherapy is sensitive to treatment and should be done in accurate way for children in certain oncological disease. Anaesthesia plan always done before radiation, and majority of patients are done in outpatients surgery taking all safety measures. Anaesthesia can be done by different anaesthesia techniques, but successful use of propofol sedation is mostly used with save measures and rapid recovery and minimal side effects by using induction dose 2-5 mg/kg and intermittent small doses for short procedures as needed or continuous infusion dose between 50-100/mcg/kg /min and rarely we increase it to more dosage while the patient is spontaneously breathing and he has oxygen therapy by mask or nasal catheter and monitored intra and post operatively and to be fully recovered and applying the criteria for discharge before leaving the recovery room to home. Clinical picture, associated malformations, medical care, orthopedic surgery care, rehabilitation programs and physiotherapy methods and some pictures were presented.

## Cardiac stab wound management

*Abdelkarim Aloweidi<sup>1</sup>, Sami Abu Halaweh<sup>1</sup>, Muath Smadi<sup>2</sup>,*

*Nisreen Nadi<sup>1</sup>, Mohamed Nawfal<sup>1</sup>*

*<sup>1</sup>The University of Jordan, Amman, Department of Anaesthesia and Intensive Care*

*<sup>2</sup>The University of Jordan, Amman, Department of Cardiac Surgery*

Stab wounds of the heart represent a significant surgical and anesthetic challenge because of their unpredictable clinical course. This is a case of 27 year old male presented with cardiac stab wound by kitchen knife that was penetrating his right pulmonary trunk and right ventricle in which an immediate sternotomy and repair was necessary and successful. A rapid intervention of cardiac penetrating trauma may allow survival for variable period of time after injury, acute cardiac tamponade is one the most challenging scenarios that, if not managed immediately, can end with cardiac arrest and death. Anaesthetic management should maintain intravascular volume and cardiac output, so initiating fluid resuscitation and blood transfusion through large bore intravenous access is mandatory, invasive intra-arterial pressure is also crucial in monitoring. Anaesthetic technique should also maintain intravascular volume status to maximise left ventricular filling, avoid bradycardia and vasodilatation till cardiac tamponade is relieved. In order to achieve that, induction of general anaesthesia is best done with drugs that maintain sympathetic tone as ketamine or etomidate. Vasopressors and inotropes as epinephrine should be available, IV opioids, propofol and volatile agents can all be used if they are tolerated. Intraoperative arrhythmias are common, so defibrillator and antiarrhythmic drugs should also be immediately available.

Postoperative ongoing care is necessary, patient should be transferred to high dependent unit or ICU, and hence they are still at risk of recurrence of tamponade, ongoing bleeding and hemodynamic instability.

Conclusion: stab cardiac wound is associated with high risk of death and surgical challenges because they are unpredicted in outcome.

Anesthetic management is vital together with cardiac surgical intervention and it needs immediate intervention and to take in consideration the stability of air way and early resuscitation and to avoid cardiovascular depressants effects of the drugs. Surgical cardiac team should consider intervention as early as possible to save the life of patient and we might consider use cardiac bypass machine in the presence of the cardiac bypass team. All teams should be ready for all necessary way of resuscitation use of instrument to save patient life.

Our patient was saved from this bad injury because the anaesthesia and surgical team were working hand to hand to save the patient life. Post-operative ICU care should be considered for further management and to avoid complications.

## Criteria for using INSURE in management of premature babies with respiratory distress syndrome

*Faten Al-Awaysheh<sup>1</sup>, Nisreen Alhmaideen<sup>1</sup>, Raeda Al-ghananim<sup>1</sup>*

*Areej Bsharat<sup>1</sup>, Mohammad AL-Hasan<sup>2</sup>*

*<sup>1</sup>Queen Rania Pediatric Hospital, Amman*

*<sup>2</sup>The University of Jordan, Amman*

Respiratory distress syndrome (RDS) is defined as acute respiratory distress caused by surfactant deficiency that disturbs gas exchange in preterm infants. It is one of the most common neonatal problems and has been considered to be the most common cause of mortality and morbidity in preterm babies. Nasal continuous positive airway pressure (NCPAP) is considered as better alternative to mechanical ventilation with fewer side effects as it stabilizes the chest wall, reduces airway resistance and increases functional residual capacity so improving lung volume and oxygenation.

Intubation Surfactant Extubation (INSURE) procedure has been investigated and resulted in a reduced need for mechanical ventilation as it involves the use of surfactant therapy with transient intubation in neonates who breathe spontaneously. In this study, different variables were studied to predict factors for INSURE failure that might help in choosing infants for this procedure early. Inclusion criteria were: all neonates who were less than 37 week of gestation according to the gynecologist record. Neonates who breathe spontaneously and were eligible for exogenous surfactant therapy according to our unit guidelines were enrolled in the study. All neonates were intubated briefly less than 2 hours, given natural surfactant in the dose of 3 ml/kg. As soon as it was appropriate and the neonate was stable in the form of normal heart rate and oxygenation, extubation was done and the baby connected to NCPAP at a pressure of 6 cm H<sub>2</sub>O.

INSURE success was seen in 47 cases (74.6%), while INSURE failure was seen in 16 cases (25.3%). As we can see in table 2, significant differences concerning the following variables were noted: gestational age, birth weight, Apgar score, antenatal steroid use, umbilical PH and anemia in newborn.

**Conclusion.** It is important to determine the candidate neonate for this procedure with the minimum failure rate. Although the sample of our study is small, but we can suggest that neonate with gestational age less than 28, birth weight less than 1000 gm, umbilical PH of less than 7, low Apgar score and anemic patients are at high risk for INSURE failure.



## **The correlation between serum levels of vitamin D in developing multiple sclerosis**

*Ali I Elmoumani, MD, Neurologist*

Multiple sclerosis (MS) is a neurodegenerative disabling disease of central nervous system commonly affecting young adult characterized by immune mediated disorder affecting white and gray matter. MS manifested by Inflammatory, demyelinating and degenerative changes of the nerves axons and nerves within the CNS. While, the focal demyelination processes are infiltrated by immune cells and soluble immune mediators, including T cells, immunoglobulin and complement components. Adhesion molecules, cytokines, chemokines and HLA molecules are critical participants in the development of the inflammatory response in brain. As a result progressive brain and spinal cord atrophy messages from the brain and spinal cord may short circuit, causing reduced body function.

Recently, numerous observational studies have shown that there is a correlation between the lower levels of serum vitamin D that could be possible causes for MS. Vitamin D deficiency has been associated with numerous diseases including autoimmune disease. Since MS is considered as autoimmune disease and vitamin D is necessary for neurotransmitter and neuronal function, also vitamin D plays an important role in immune system regulations.

A widely accepted view of the role of vitamin D on these immune cell types include lymphocyte activation and proliferation, T-helper cell differentiation by depressing or inhibiting the production of IL-2, IL-17, and interferon- $\gamma$  (IFN $\gamma$ ) , induces monocyte proliferation and the expression of interleukin-1 (IL-1), and regulation of the immune response in macrophages and monocytes. In the CNS, vitamin D has been found to block the production of pro-inflammatory cytokines and nitric oxide by microglia.

Recently, vitamin D has been shown to moderate demyelination and potentiate remyelination of oligodendrocyte apoptosis, and stimulate the differentiation of oligodendrocyte precursors into mature cells. In conclusion, based on research reviews, higher level of vitamin D is associated with lower risk of developing MS. vitamin D supplementation would modify clinical activity in established MS, including decreased risk of relapse and reduction in disease activity on brain.

## **The ketogenic diet and epilepsy. Nutritional aspects**

*Ali I Elmoumani, MD, Neurologist*

*Baha' Abu Salma, PhD*

Epilepsy is a neurological condition that affects the nervous system and Electrical activity in the brain becomes disturbed, these disturbances result in seizures.

Ketogenic diet (KD), being rich in high quality fat, low carbohydrate, and adequate protein diet, has been showed an effective treatment for children with epilepsy and reduced seizure frequency. It is currently used mainly for children who continue to have seizures despite treatment with antiepileptic drugs. Recently there has been interest in less restrictive ketogenic diets including the Atkins diet and the use of these diets has extended into adult practice.

However, the mechanism(s) by which the KD achieves neuro-protection and seizure control are not yet known. In both clinical and animal studies Ketogenic diet has been shown to control seizure in epileptic patient through manipulation of metabolism principles and brain energetic through acute and chronic biochemical changes which changes in brain pH (e.g., acidosis which would favor neuronal inhibition through proton-sensitive ion channels), decreased serum glucose levels, increased ketone production, a reduction in the generation of reactive oxygen species (ROS), increased fatty acid levels (polyunsaturated fatty acids [PUFAs]) which possess membrane- stabilizing properties), and increased bioenergetics reserves (increased levels of ATP and ADP) which is the basic of controlling seizure in cerebral hemisphere through ketosis as well as effect on neuronal membrane function.

Several animal studies revealed that KD high in polyunsaturated fatty acids not only have mild to moderated ketosis but also produce free fatty acids, also raised level of plasma polyunsaturated fatty acids rapidly oxidized and therefore helping sustain ketosis which has a beneficial effects in epilepsy control seizure.

Recently, many studies suggested the anticonvulsant effects of ketone bodies and actions on inhibitory neurotransmission by Utilization in the rate of glutamate transamination to aspartate) increase the rate of glutamate decarboxylation to GABA, the major inhibitory neurotransmitter, glutamate would be available for the synthesis of both GABA and glutamine. An increase in brain GABA levels would then be expected to dampen seizure activity.

## **Transitional neonatal hypoglycemia**

*Faten Al-Awaysheh*

*Queen Rania Pediatric Hospital, Amman*

- Pathophysiology of transitional neonatal hypoglycemia
- Challenges in defining threshold level in neonatal hypoglycemia (AAP versus PES)
- Recent outcome data studies in neonatal hypoglycemia
- A new approach for management of asymptomatic neonatal hypoglycemia
- Hypoglycemia is the commonest metabolic disorder of the newborn
- A preventable cause of neonatal brain injury.
- Management of neonatal hypoglycemia has for decades been based on extremely limited evidence.

It is important to differentiate the normal physiologic transitional response from disorders that result in persistent or recurrent hypoglycemia, which if left untreated may lead to significant neurologic and developmental sequelae.



## **An unusual foreign body in the nose**

*Alladin Alamad*

*Consultant ENT Surgeon, Ministry of Health, Jordan*

Case of 5 years old child present with recurrent epistaxis and nasal obstruction in nasal examination right nose showed mass and left nose where normal. CT was done and was confirmed right said nasal mass in this age nasal foreign body are common, it present with a unilateral nasal discharge and bad smell.

Conclusion. Foreign body in the nose can be difficult to diagnose and can be presented in different symptomatology. Needs for proper diagnosis and management should always take in consideration the age and previous history. Different management can be done accordingly. Surgical treatments is good option to remove the foreign body.

## **Multiple congenital contractures (MCC's)**

*Mohammad Omar Abu Zaid, MD*

*Consultant of Physical Medicine and Rehabilitation*

Arthrogryposis or arthrogryposis multiple congenital contractures, comprises no progressive conditions characterized by multiple joint contractures found throughout the body at birth. The term currently is used in connection with a very heterogeneous group of disorders having the common feature of multiple congenital joint contractures. In diagnostic center for early disabilities and handicaps (MOH). Prospective analysis of all pediatric patients seen during the period of Jan 1st 2007 till Dec 31st 2007 was done in Diagnostic center. Data regarding the needs was collected and analyzed to screen the cases and followed up and treated in rehabilitation and physical medicine department in Al- Bashir Hospital.

Results. Among 2094 cases was following in the center. 137 cases were having motor disorders. 5 cases one female and 4 males were due to MCC's. Clinically were examination and evaluated by us and diagnosed as MCC's. Clinical picture, associated malformations, medical care, orthopedic surgery care, rehabilitation programs and physiotherapy methods and some pictures were presented.

## **Correction of hallux valgus. Experience in Islamic Hospital**

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The hallux is a deformity of the foot that affect the first ray characterized by lateral deviation of the great toe associated with medial deviation of the first metatarsal bone resulting condition is much more complex than a simple cosmetic deformity description of this disorder attributed to Laforest (1782) surgeon to Louis Hueter coined the term “hallux valgus. This deformity in 1871 hallux valgus is common particularly in women between 40 and 60 years of age and to some extent is related to the type of footwear used.

Hallux valgus cannot be attributed to a single cause; intrinsic factors that alter normal bone structure, exposing the great toe to abnormal pronating forces that produce hypermobility of the bone structures stability of the bones becomes excessively dependent on the soft tissues during the late propulsion phase of the hallux extrinsic factors can exacerbate the deformity.

## **Stress urinary incontinence approach and management**

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*Laura Abaid*

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SUI is involuntary loss of urine on effort or exertion. SUI is the most common type of incontinence in younger women .Patho-physiology of SUI is urethral hypermobility or ISD. SUI interfere with women quality of life. Management of SUI is surgical or non-surgical. MUS revolutionized the surgical treatment of SUI and USI. MUS is a minimal invasive procedure. Long term studies to consider the best MUS generation.



## **The burden of obesity in pregnancy**

*Angela Vînturache*

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Worldwide there has been a dramatic increase in the prevalence of overweight (Body Mass Index, BMI > 28 kg/m<sup>2</sup> and obesity (BMI > 30 kg/m<sup>2</sup>) in women of childbearing age, approximately one third of women of reproductive age are reported to be obese. The alarming rise in maternal obesity rates warrants increased efforts to understand and address the relationship between maternal body composition, obesity-related complications of pregnancy, and fetal health outcomes. We conducted several studies that assessed the impact of increased BMI prior to pregnancy on maternal complications, delivery, and labour and fetal outcomes in overweight and obese women.

This presentation reviews the burden of obesity in pregnancy in context of global obesity epidemic and briefly discuss the consequences of obesity on pregnancy outcomes as informed by the existing guidelines and interventions. Thus, we discuss the prevalence of overweight and obesity in pregnancy stratified by country and population characteristics, as found by our studies. We report a prevalence of overweight and obesity of 23.5% in a Chinese pregnant population, of 40% in a Canadian population, of 42% in an UK population, and little higher than 47 % in an Irish population. In our studies, women with a BMI higher than 30 kg/m<sup>2</sup> represented between 10 and 17.8 %. An overview of the outcomes of obesity on pregnancy focuses on the increased rates of pregnancy complications (preterm birth, preeclampsia), labour induction, and obstetrical interventions, and summarize the adverse effects of maternal nutrition on fetal health. Of note, we show a five time increase in the risk of pregnancy-induced hypertension and preeclampsia (adjusted aOR 5.7, 95 % CI 3.7-8.8 for pregnancy-induced hypertension and aOR 5.3, 95 % CI 3.3-8.5 for preeclampsia). Approximately 11 % of the obese women develop gestational diabetes and almost 15% have macrosomic babies. Induction of labour is more frequent in women with increased BMI, with half of the women who have labour induced being obese. Furthermore, obese women have twice the risk to deliver by an emergency caesarean section if their labour is induced.

Consequently, we conclude that health care professionals should be aware of the increased risk of obesity in every woman of childbearing age in order to address in a timely manner the preventable and modifiable risk factors of obesity. Health care providers should discuss the potential outcomes of obesity on pregnancy and delivery during the prenatal appointments and adequately counsel the women on measures that need to be taken to optimize the outcomes of present and future pregnancies.

## **Frailty, cognitive function and health-related quality of life in the geriatric population diagnosed with advanced chronic kidney disease**

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With a growing ageing population and improved medical care, there is an increasing number of elderly patients with chronic kidney disease (CKD), which is raising awareness and concern of the impact that common geriatric syndromes such as frailty may have on clinical outcomes, health-related quality of life, and rising economic burden associated with healthcare. Increasingly, frailty is recognized to be a highly prevalent and important risk factor that is associated with adverse cardiovascular outcomes, particularly in patients with renal impairments. Frailty is a physiological syndrome characterized by reduction of functional reserves and resistance to ‘stressors’ due to a cumulative decline of physiological systems causing vulnerability and adverse events. Frailty is often conceptualized by health care providers as a state of late life decline and extreme vulnerability, characterized by weakness and decreased physiological reserve contributing to an increased risk of falls, institutionalization, disability, and death. Frailty develops as a consequence of age-related decline in many physiological systems, which collectively results in vulnerability to a sudden change in health status, triggered by minor stressor events. Almost 10% of people aged over 65 years are frail; quarter to half of them are aged above 85 years. In addition, frailty is common in those with chronic kidney disease (CKD). In fact, the prevalence of frailty in the older adult population is reported to be 11%, whereas the prevalence of frailty has been reported to be greater than 60% in dialysis-dependent CKD patients. Furthermore, the presence of frailty in patients with CKD may lead to a higher risk of mortality. On the other hand, frailty itself is a risk factor for renal impairment, for example; The Atherosclerosis Risk in Communities (ARIC) Study demonstrated that frailty is strongly associated with progressive renal impairment. It is clear that the interest in frailty has doubled in the last decade, and many studies on this topic have been conducted in the last few years. The relationship between frailty and chronic kidney disease was approached by many studies, however, some of the studies have included non-geriatric population. Also, some of them did not use physical tools to assess frailty and were only self-reported which are more likely to be less accurate in its outcome. Up to the current moment, there is no definitive agreement on which frailty tool to be used in general and particularly among geriatric patients diagnosed with chronic kidney disease. Our study is going to give a clear and definitive answer to those queries.

## **Expresia izoformelor Akt sub influența Sevofluran, în cancerul de sân uman – studiu experimental –**

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Introducere. Modalitățile prin care celulele tumorale stimulează progresia cancerului depind de balanța dintre factorii preoperatori (responsabili de supraviețuire), apărarea imună a gazdei și rata de proliferare tumorală. Factori precum anestezicele inhalatorii de tipul sevofluran modulează numeroase cascade moleculare la nivel tisular, cu influență semnificativă asupra creșterii tumorale. În carcinoamele agresive expresia izoformelor Akt (1,2,3) este amplificată, izoformele jucând roluri diferite în invazie, migrare, și diseminare metastatică.

Obiectiv. Descrierea profilului de expresie a izoformelor Akt la nivelul celulelor umane mamare, normale și neoplazice, expuse la sevoflurane, linii celulare manipulate in vitro pe sisteme de culturi celulare 2D și 3D.

Material și metodă. Linii celulare mamare umane normale MCF10A (ATCC®) și canceroase MDA-MB-231 (ATCC®) au fost cultivate pe mediu 2D (suporturi de plastic aderente) și 3D (matrigel). Grupurile de studiu au fost tratate cu diferite concentrații de sevofluran (0.5, 2, 3, 4mM) comparativ cu grupuri control netratate. Celulele tratate și netratate cu sevofluran (2D și 3D) au fost evaluate în microscopie optică și supuse testelor de viabilitate. Analiza expresiei izoformelor Akt a fost realizată prin imunofluorescență.

Rezultate. La 24 de ore, culturile 2D de celule mamare canceroase expuse la sevofluran comparativ cu celule mamare normale tratate, au proliferarea inhibată. La 72 de ore se observă o creștere explozivă a liniei neoplazice, efectul cel mai semnificativ fiind pentru concentrația de 2mM ( $p < 0.000005$ ). În culturile 3D, la celulele canceroase comparativ cu celulele normale, se constată aceeași evoluție a creșterii celulare, cu identificarea specifică a izoformelor Akt exprimate cel mai intens în celulele expuse la 2mM.

Concluzii. Expunerea celulelor tumorale mamare la sevofluran are impact semnificativ asupra procesului de creștere și diferențiere celulară prin modularea semnificativă a gradului de expresie a fiecărei izoforme a Akt.

## **Transcatheter aortic valve implantation complications – early diagnosis, therapeutic management and prevention**

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Transcatheter aortic valve implantation (TAVI) has revolutionized the therapeutic management of patients with severe aortic stenosis, offering the possibility of curative treatment for the most fragile patients. In the latest editions of both American and European guidelines on valvular heart disease, TAVI has been included as a therapeutic alternative in selected patients including inoperable or high-risk surgical patients. The indication for TAVI is established after a thorough evaluation by a "Heart Team" including cardiologists, cardiac surgeons, interventional cardiologists, anesthesiologists and radiologists. If this technique has defined a new therapeutic era for aortic stenosis, with evidence of a reduction in mortality compared to medical treatment, it inevitably entails the risk of complications. These can occur immediately after the procedure, during the hospitalization period but also on the long-term. Early periprocedural complications are related to vascular access, valve deployment, valve function, organ injury, and arrhythmia. Late complications generally include aortic regurgitation and prosthetic valve thrombosis. The current paper provides insight into the potential for complications, offering advice on early recognition, effective treatment, and ultimately, prevention from the perspective of an experienced Heart Team performing TAVI at the "Prof. Dr. George I.M. Georgescu" Cardiovascular Diseases Institute (Iasi, Romania). Increasing clinical experience and progressive improvement in TAVI devices will lead to a significant decrease in complication rate. Until then, all TAVI performers should know how to adequately manage potential complications.



## Psychological resilience vs. Physical resilience in post-hip fracture recovery period in senior patients.

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**Introduction.** Resilience is a complex multidimensional construction, representing the process of optimal adaptation to adversity, trauma, tragedy, threats or significant sources of stress; practically represents the patient's ability to "come back" from difficult experiences. The development of resistance is a personal journey; so an approach to building resilience that works for a person may not work for another. As for older adults, resilience is described as the ability to obtain, maintain or regain a physical or emotional state of health after illness or loss.

**Methods.** We present 2 clinical cases, 2 elderly patients who have had hip fractures, post-traumatic, by falling from the same level at home. Both patients underwent surgery, total hip arthroplasty and were hospitalized for postoperative recovery. The 75-year-old patient had a favorable evolution of osteoarticular recovery, despite the fact that she is a fragile patient with comorbidities, and moderate family and social support. The 93-year-old patient despite the excellent family and social support had an unsatisfactory evolution, unable to adapt to a pre-psychoemotional status. We believe that this outcomes where due to different physical and psychological resilience.

**Conclusions.** Functional recovery among older adults after orthopedic surgery is complex and multidimensional. Many factors influence functional recovery after orthopedic surgery in the elderly. Resilience and fragility play an important role and interact in determining the functional outcome. The possibility of early identification of fragile and non-resilient patients is an opportunity to improve early functional outcomes.

## Genetica ceasului biologic și implicațiile în patologie

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Ritmul circadian cuprinde totalitatea proceselor fiziologice care se repetă la fiecare 24 de ore și asigură sincronizarea acestora cu mediul înconjurător. Principalele gene implicate în funcționarea circadiană a ceasului biologic sunt cele care codifică activatori (circadian locomotor output cycles kaput - *CLOCK* și Brain and muscle Arnt-like protein 1 - *BMAL1*) și cele care codifică inhibitori (Period - *PER1*, *PER2*; cryptochrome - *CRY1* și *CRY2*). Reglarea genelor respective se face la mai multe niveluri caracterizate prin oscilații circadiene: transcripție, splicing, poliadenilare, export nuclear, reglarea microARN, translația și degradarea ARN. Genele ceasului biologic reglează expresia genică a peste ~43% din genele ce codifică proteine la nivel celular astfel încât multe din funcțiile organismului sunt reglate de expresia ritmică a genelor ceasului biologic. În consecință, expresia genică anormală cu perturbarea ritmului circadian intervine în patogenia unor boli precum cancerul, bolile cardiovasculare, diabetul zaharat, depresia. Polimorfisme în unele din aceste gene s-au corelat pozitiv cu obezitatea sau cu alte manifestări ale sindromului metabolic, consecințe cardiovasculare (polimorfisme în gena *CLOCK* au fost asociate cu susceptibilitate crescută la obezitate, iar anumite variante genetice ale *BMAL1* s-au întâlnit mai frecvent la pacienții cu hipertensiune arterială și diabet zaharat tip 2). Ritmul circadian intervine în mod normal în procese celulare precum ciclul celular, apoptoza, repararea ADN-ului, tranziția epitelial mezenchimală, metabolismul și funcția imună, iar disfuncția moleculară a ceasului biologic are efecte în procesul de tumorigeneză. Cunoașterea mecanismelor moleculare prin care este compromis ceasul molecular circadian este o premisă pentru noi intervenții terapeutice în diabetul zaharat tip 2, obezitate sau alte tulburări metabolice, cancer, etapă importantă de cronofarmacologie în practica medicală.

## **Evaluation of HBV genotypes circulation on different categories of Romanian patients**

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**Background.** There are known 240 million people with chronic HBV surface antigen (HBsAg) carriers worldwide and 10 types of HBV with different geographical distribution due to population shifts occur due to intravenous drug use, sexual behavior and migration phenomenon. The therapeutical decisions is based on clinical evidence, as studies have compared the effectiveness of antiviral medication: conventional interferon or pegylat alfa *versus* nucleoside analogues (NA) (lamivudine, telbivudine, emtricitabine, entecavir) and nucleotide (adefovir and tenofovir).

**Material and methods.** Samples of 56 patients (38 with chronic HBV infections and 18 HBsAg positive pregnant women) were genotyped using INNO LiPA HBV assay at Virology Laboratory of "Grigore T. Popa" University of Medicine and Pharmacy, Iași. 19 samples were confirmed by Real Time PCR assay, a very sensitive molecular assay.

**Results.** The most frequent genotyoe was D, in 66.07 % (37 / 56), followed by A, 10.71 % (6 / 56) and F, in 5,35 % (3 / 56). Double infections were detected in 4 cases.

**Conclusion.** We confirmed the previous HBV genotypes circulation in our country (A and D, respectively), with the mention that F genotype was for the first time detected in our area. Clinical decisions, individualized for each patient should be taken immediately based on response rate to therapy and on the basis of adverse reactions. A special follow-up should be given to pregnant women, as there is risk for maternal tranmission to the new borns.

## **Local flaps in surgical reconstruction of the post-tumoral nasal defects**

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**Aim.** The nasal region, placed in the central part of the face, is a very important functional and aesthetic segment, always exposed to trauma and frequently involved in the development of tumors. Although small, the nasal post-tumoral defects are usually complex due to the different excised structures (skin, cartilage, mucosa). Therefore such defects are not indicated to be reconstructed using skin grafts. From aesthetical and functional point of view, local flaps are eligible for this aim. Frontal and genian regions are the first to be chosen as donor sites.

**Methods and materials.** We conducted a retrospective study on 126 patients with facial malignant tumors, surgically treated during 5 years. The nasal region was affected in 57 cases, most of them (41 = 71.9% inflamed and ulcerated, with long evolution of 9 to 10 years, and confirmed as basal cell carcinomas). In 31 cases the tumors occupied the *dorsum nasi* and epichantal region, in 12 cases both dorsal and lateral aspect of the nose were invaded, in 6 cases the alar segment was invaded, in 5 cases the tip of the nose was affected and in 3 cases the columellar region. For 11 cases we performed the excision of all anatomic layers, including cartilage and mucosa. For the rest of the patients (46) we had to excise only the soft tissues as the tumors were more superficial. To reconstruct the postexcisional defects we used local flaps in all the cases. We combined local flaps with full thickness skin grafts in 7 patients, in order to reconstruct the mucosal area. For the cartilage reconstruction we used septal grafts in 5 cases. Frontal flaps were selected to be used in 36 patients (24 in defects located on *dorsum nasi* and medial epichantus, 12 defects occupying both dorsal and lateral aspect of the nose). We used glabellar flaps in 7 cases with medial epichantal defects and nasogenian flaps in 9 cases with alar and columellar areas to be reconstructed. For the tip of the nose, the used reconstruction was the advancement flap from the dorsal and lateral nose.

**Results and conclusions.** The postoperative evolution was good in most of the cases (54) and we had to perform flap remodeling in 15 cases. Oncological follow-up was performed for all the patients. In 6 cases reexcision and flap repositioning was necessary. Local flaps are a good option in post excisional nasal defects from aesthetic and functional point of view. The supratrochlear and supraorbital flap's versatility offers the possibility to reconstruct soft tissues defects both on the *dorsum nasi* and lateral aspects of the nose.



## **Infecția cu *Clostridium Difficile* – update privind infecțiile asociate îngrijirilor medicale**

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Infecția cu *Clostridium difficile* reprezintă o importantă problemă mondială a sistemului de sănătate publică. În prezent, *Clostridium difficile* este responsabil pentru 48% dintre infecțiile gastrointestinale asociate asistenței medicale în spitalele de urgență din Europa și a devenit una dintre cele mai frecvente cauze ale infecțiilor asociate asistenței medicale în spitalele din SUA. *Clostridium difficile* este un bacil gram-pozitiv, anaerob, ce formează spori și produce toxine. Poate determina infecții nozocomiale de amploarea unei epidemii din ce în ce mai virulente și severe. Apariția unui dezechilibru în ponderea florei saprofite normale din tubul digestiv ca urmare a unor factori supraadăugați, poate determina eliminarea concurenței microbiene a altor germeni saprofiti și dezvoltarea excesivă a populațiilor de *Clostridium difficile*. Debutul simptomatologiei are loc după minim 48 de ore de la spitalizare sau în primele 4 săptămâni de la externarea dintr-o unitate spitalicească. Simptomatologia presupune diaree apoasă sau cu sânge, dureri abdominale, febră, greață, scăderea poftei de mâncare, deshidratare, scădere în greutate. Pentru stabilirea diagnosticului cert e necesară izolarea toxinelor A și B ale *Clostridium difficile* din materiile fecale, determinarea glutamat dehidrogenazei (GDH) din materiile fecale, determinarea genelor toxinelor clostridiene A și B prin PCR – *gold standard*-ul de diagnostic. Tratamentul etiologic presupune administrarea orală de Metronidazol 500 mg x 3/zi, timp de 10-14 zile, sau Vancomicina 125 mg x 4/zi, pe o perioadă de 10-14 zile. Tratamentul chirurgical se indică în perforatie de colon, ileus sever cu deshidratare, sau megacolon toxic. Ca și caracter de noutate în tratamentul recidivelor care nu au raspuns la tratamentul utilizat în primul episod se recomandă: Fidaxomicină 200 mg x 2/zi. De asemenea, de luat în considerare poate fi și transplantul de microbiotă fecală, o metodă relativ nouă de a schimba direct microbiota intestinului destinatarului pentru a normaliza compoziția și a obține un beneficiu terapeutic. În concluzie, se impun anumite măsuri de prevenție, controlul politicilor de antibioterapie atât în spital dar și în ambulator, cu reducerea frecvenței și duratei utilizării antibioticelor, în vederea diminuării până la eliminarea acestor infecții asociate îngrijirilor medicale.

## **Un alt tip de infarct miocardic acut – MINOCA**

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MINOCA (myocardial infarction in the absence of obstructive coronary artery disease) reprezintă un concept considerat relativ nou apărut ca urmare a studiilor necroptice și angiografice care susțin ideea posibilității apariției infarctului de miocard în absența leziunilor aterosclerotice coronariene semnificative. Din punct de vedere epidemiologic incidența MINOCA este estimată între 5-15% în departamentele de urgență. Pacienții diagnosticați cu MINOCA sunt adesea mai tineri, predominant de sex feminin și fără factori de risc cardiovascular majori. Din punct de vedere clinic și electrocardiografic MINOCA se prezintă ca un sindrom coronarian acut cu sau fără supradenivelare de segment ST, indiferent de etiologia de bază, însă cu biomarkeri caracteristici infarctului de miocard pozitivi (în special troponina). Standardul de aur în ceea ce privește diagnosticul imagistic îl reprezintă Rezonanța Magnetică Cardiacă care, pe lângă diagnosticul pozitiv ajută și la diagnosticul diferențial, prin eliminarea altor afecțiuni cu tablou clinic asemănător. Coronarografia poate obiectiva stenoze coronariene de natură aterosclerotică, însă sub 50%. Odată diagnosticat MINOCA, obligatoriu trebuie precizată cauza întrucât tratamentul cu viză etiologică este esențial. De asemenea trebuie reținut faptul că terapia de revascularizare nu reprezintă o opțiune în cazul acestor pacienți dat fiind afectarea predominantă a microvascularizației coronariene.

## Dimensiunea etică a diversității culturale în educația medicală

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Într-o lume globalizată nevoile de sănătate reprezintă o prioritate, iar integrarea cerințelor etice corespunzătoare actului medical contemporan în educația medicală, subscriu acestei priorități de formare profesională a viitorului medic, într-un context multicultural, multinațional. Pornind de la un set de valori comune, care plasează central dreptul la ocrotire a sănătății, libera alegere și egalitatea de șanse, aprecierea, încurajarea și dezvoltarea competențelor profesionale transculturale, vor contribui la asigurarea accesului la servicii medicale, la garantarea calității și siguranței actului medical. În acest sens, educația medicală în contextul multicultural al globalizării este promovată ca o strategie proactivă, cu scopul de a crește câștigul de sănătate într-o lume în mișcare și în schimbare permanentă și de a contribui prin măsuri de securitate la ridicarea nivelului de protecție a sănătății mondiale. Scopul acestei lucrări este de a analiza dimensiunea etică a diversității culturale în educația medicală. Pornind de la considerentul că abordarea din perspectiva etică a educației medicale în contextul globalizării permite o mai bună înțelegere a cerințelor actului medical contemporan, principalele probleme aduse în discuție sunt prioritățile pe care diversitatea culturală le antrenează în sănătatea publică, în ce măsură educația medicală corespunde nivelului contemporan al globalizării și care este dimensiunea etică a diversității culturale în educația medicală. În această lucrare am urmărit prezentarea unui cadru conceptual prin care să subliniem semnificația teoretică, dar mai ales implicațiile practice ale aspectelor etice derivate din complexitatea și diversitatea actului medical contemporan prin sistematizarea abordărilor din literatura de specialitate. De asemenea, am urmărit explorarea spațiului dintre dreptul la sănătate și furnizarea universală de servicii de sănătate, cu extragerea semnificațiilor etice, ca valori asociate educației medicale în contextul multicultural al globalizării. Vizând problemele aduse în discuție, am oferit explicații din perspectivă etică, atât în analiza elementară a elementelor specifice dar și sinoptică a conexiunii dintre domeniul educației medicale, sănătate, diversitate culturală și globalizare. Considerăm că modelarea conceptuală a informațiilor prezentate, poate fi utilă pentru abordări generice, ca date generale pentru domeniul educației medicale cât și pentru dezvoltarea politicilor naționale și internaționale mai favorabile pentru sănătate, în sensul de a îmbunătăți calitatea îngrijirilor de sănătate în lume și accesul la servicii de sănătate.

## **Principal cytokines influencing periodontal disease and rheumatoid arthritis**

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Both rheumatoid arthritis (RA) and periodontitis (PD) are complex chronic inflammatory diseases who share a multitude of susceptibility factors (especially genetic and environmental risk factors). An important difference between these pathologies is that periodontal disease results from the inflammation that develops in response to the subgingival microbiota, while the inflammation in rheumatoid arthritis stems from an exaggerated specific adaptive autoimmune response. This proinflammatory status is perpetuated by the continued bacterial challenge in periodontitis and the autoimmune response triggered in RA, culminating in the progressive destruction of tissues that eventually lead to the signs and symptoms of the disease.

Despite the differences in mechanisms of etiological initiation, the idea of polymorphisms of genes that encode certain cytokines which results in connective tissue damage and bone metabolism alterations in the two pathologies mentioned is a bridge which links these diseases. Additionally, there is evidence that both periodontitis and RA are manifested as persistent levels of proinflammatory cytokines and associated molecules. In addition, therapeutic strategies based on blocking proinflammatory cytokines in RA have been shown to have an impact on the overall periodontal status. Treatment of this disease is often misconducted leading to the subsequent loss of teeth. If dental implantation is performed without thoroughly disinfecting the implantation situs chances of success are greatly diminished.

Conclusion: Research into the molecular pathogenesis of periodontitis and rheumatoid arthritis is continuously producing novel and significant results. Despite extensive research, however, the detailed mechanisms of pathogenesis are still not elucidated. Nevertheless, the field is moving forward, utilising technological advances and synergy effects from findings in closely related diseases. Periodontitis is currently being connected to the pathogenesis of various systemic diseases and conditions, further emphasising the importance of a deeper understanding of this common condition. Successful novel treatment strategies have the potential to improve both the oral and the systemic health of patients afflicted with periodontitis.



## **Remineralization of incipient acute and chronic caries lesions using self-assembling peptides: an *in vitro* study**

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The major objective in the treatment of an incipient caries lesion is a complete remineralization of subsurface lesion. It was demonstrated that it is very difficult for calcium and phosphate ions to diffuse in the deepest layers of the carious enamel, most of the remineralization process being limited to the superficial, virtually intact layer of the caries lesion. One of the latest strategy for incipient caries lesions remineralization is the use of self-assembling peptides (P11-4). The aim of the study was to evaluate the effect of biomimetic self-assembling peptides (P11-4) on remineralization of acute and chronic incipient enamel lesions by microhardness analysis.

**Materials and method.** Twenty extracted permanent human teeth (molars and premolars) having incipient white spot and brown spot lesions on proximal surfaces were included in this study. Half of the extern surface of the lesions was covered with flowable composite resin and served as negative control site. On the other half of the lesions Curodont™ Protect gel (Credentis AG, Windisch, Switzerland) was applied 2 times a week, 8 weeks (study site). Two cutting lines using diamond disks under cooling water were made perpendicularly to the extern surface of the lesions in order that both areas (negative control and study) to be measured. The opposite proximal sound enamel on each section served as positive control site. The subsurface microhardness of the enamel samples was determined using digital microhardness tester (MicroVickers Hardness System CV- 400DMTM, CV Instruments Namicon). In horizontal tooth sections indentations were made in six areas for each sample: at 25 µm, 75 µm, 125 µm, 175 µm, 225 µm and 275 µm bellow the extern surface. For each area of one sample the VHN value was reported as the average of three determinations. The final value of one area was the average of ten samples determination.

**Results.** Increased VHN values were obtained in all five areas of acute and chronic incipient caries lesions after Curodont™ Protect application. For both acute and chronic lesions the hardness at different depth level was lower than the hardness of sound enamel. The remineralization of acute caries lesions was very similar to the remineralization of chronic caries lesions at all depth levels.

**Conclusions.** Curodont™ Protect gel which contains self-assembling peptides P11-4 demonstrated a good potential in remineralizing acute and chronic caries lesions.

## **Study on the impact of socio-economic status on healthy behaviors concerning oral hygiene of first grade school children in Iasi, Romania**

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Oral hygiene is essential to dental and periodontal health throughout life. The aim of this study was to investigate the impact of socioeconomic status on oral hygiene practices of first grade schoolchildren in Iasi town, Romania. Material and methods: the clinical study was cross-sectional type and included 105 children aged 6-7 years, who were investigated for self-reported measures of oral hygiene using an 11-item questionnaire. The bacterial plaque index Silness-Löe was used to assess oral hygiene. Socioeconomic status (SES) of the family of origin (low, medium, high) was determined by questions concerning parents' occupation, income and number of members in the family. Results: the plaque index had a mean value of 1.85 in the study sample, significantly higher in children with low SES (2.68) than in children with high SES (0.92),  $p < 0.01$ . Most of the subjects reported a frequency of toothbrushing of once per day - 63.2%, usually in the morning (69.7%), with a mean time of less than one minute spent on toothbrushing (50.5%), significantly higher in children with high SES than in children with low SES ( $p < 0.01$ ). For the children in the high SES group, the most frequently met reason for brushing teeth was “to prevent dental caries” (87.3%); for the subjects in the medium and low SES group, the most frequent reason for oral hygiene was “to get rid of bad breath” (73.9% and 67.5%, respectively). Most of the subjects with high SES (37.5%) declared they changed the toothbrush every 4-6 months, while for most of the children with low SES the usual interval to exchange toothbrush was more than 1 year. The proportion of children supervised by their parents during toothbrushing was 57.1% for the ones in the high SES group and 17.8% for the children in the low SES group. Conclusion: the results of the study underline the need for school-based oral health education programmes, which could reduce the differences in oral hygiene caused by socioeconomic status.

## **The chemical link between theory and research in aromatherapy**

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Following the long history of herbal medicines, aromatherapy is currently recognized as part of pain management and rehabilitation of patients. Usually, such therapy involves volatile or essential oils. The volatile oils are complex mixtures of various classes of terpenes either oxygenated or not, which share the property to evaporate completely over time without any trace.

The most claimed properties of volatile oils include antibacterial and antiviral activity, relaxation, anxiety and nervousness relief, promotion of sleep, immunomodulatory, mood and mental enhancing potential. However, the mechanism and efficacy data are still controversial and relatively few. The fact that aromatic plants generally contain small quantities of volatile oil is a cause for expensive preparations and leads to frequent adulteration. There are many variables due to the quality of the volatile oil and the route of administration. Moreover, the *in vivo* studies and clinical trials are yet to provide diverse concepts and perspectives about how volatiles affect health.

There are several theories in regards to the binding and systemic effects of volatile compounds, some of which are quite popular among aromatherapy practitioners. The understanding of the mechanisms behind the detection of odours and how the brain reconstructs these signals into an information (smell) has greatly advanced during the past 20 years.

For a better understanding, we aim to present the link between different theories and research with an emphasis on chemical composition of commonly used aromatic plants, based on our own experience with animal models.

## **Preparation and characterization of new bioactive and biomimetic polymeric membranes**

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The aim of this study was the development and the characterization of new hybrid hydrogels based on chitosan, hyaluronic acid and bentonite, which have incorporated arginine, as active substance. Based on their specific characteristics and biological properties, chitosan and hyaluronic acid have attracted the researchers' interest in developing new systems with medical applications. So, chitosan (CS) is a cationic polysaccharide, biocompatible and biodegradable, with versatile biological effects such as antimicrobial properties, hemostatic effects, having favorable characteristics for promoting dermal regeneration and accelerating wound healing. Hyaluronic acid (HA) is a non-sulphated glycosaminoglycan, present in many tissues, such as skin, synovial joints and periodontal tissues and bentonite is frequently used in cosmetic and pharmaceutical industry. Arginine is a basic alpha-amino acid which is known that enhances wound collagen synthesis and wound breaking strength during normal and impaired healing.

**Materials and Methods:** The developed systems were obtained using chitosan hydrogel 5%, bentonite 5% and hyaluronic acid solution 1%. The proportion of chitosan-bentonite hydrogel and hyaluronic acid solution ranged between 95%-5% and 40%-60%. In these formulations the arginine 2% was included. The obtained hybrid hydrogels were characterized in terms of pH, swelling degree and porosity. The morphology of developed membranes, using Scanning Electron Microscopy (SEM) was also analyzed. The presence of arginine in the polymer matrix was proved by Fourier-Transformed Infrared Spectroscopy (FT-IR).

**Results and Discussions:** There were obtained seven new hybrid hydrogels based chitosan-bentonite-hyaluronic acid-arginine, whose pH varied between 4.72 and 5.33. The swelling degree is depending on concentration of chitosan and hyaluronic acid as well as on concentration of arginine and is ranged between 200% and 300% after 60 min. The presence of arginine in the polymeric matrix has as result increasing of the porosity degree.

**Conclusions:** All correlated data of this study showed the developed systems are potential materials for wound dressing, targeting the tissue regeneration and the risk of local infections.

## **The Use of Fluorescence Microscopy for Evaluation of *Saccharomyces Cerevisiae* Cells Destruction**

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*Saccharomyces cerevisiae* is a species of yeast with fermentative properties, often used in the food, pharmaceutical and cosmetics industries. Although the main use is food science, once with the technological evolution, yeast cells have become the core of the biotechnology and cell biology studies. Being easily genetically modified, it is especially used as a vector for cloning and in the biosynthesis of various bioactive substances – the ones that develop medical treatments. Moreover, in cancer therapy, yeast is used for the biosynthesis of some of the antigens that have been found in tumors.

Structural components of cells, as well as the behavior under different hydrodynamic conditions were revealed using the microscopic fluorescence analysis methods. Separation of products obtained by biochemical processes is a vital step in a biotechnological process and it depends on product location (intracellular or extracellular), final product concentration in the liquid, its physicochemical characteristics and product use. Being intracellular, it cannot diffuse through the cell membrane, it is necessary to destroy it by appropriate methods. As material and method, it was used a Leica microscope with a fluorescence module on, and the pigmentation of the cell membrane of the *Saccharomyces cerevisiae* microorganism was performed using the pigmentation kit ab219941 - Cytopainter - Cell Plasma Membrane Staining Kit - Orange Fluorescence. Cell excitation was performed at 540 nm wavelength under the green light specter, while the emission started at a 590 nm wavelength under orange light. In this experiment, the cell degradation was made using both mechanical and chemical methods, and it was compared which one of them is more suitable.

By evaluating the results that were obtained by analyzing the behavior of the cells at different variations of work parameters, several conditions have been established that lead to conclusions upon the viability of *Saccharomyces cerevisiae* cultures. Fluorescence microscopy is more than useful in detecting, numbering and finally leading to well determined conclusions regarding the cell destruction level.

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## **Combined therapy in limiting the evolution of the knee osteoarthritis with quadriceps muscle training and intra-articular infiltration of the knee with hyaluronic acid**

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Knee osteoarthritis (KOA) is a slowly progressive disease with a disabling end with multiple causes. KOA symptoms are: pain in knee movement, reduced mobility, joint deformity, muscle hypotonia, and joint cartilage erosion. Muscular hypotonia is a consequence of Arthrogenic Muscle Inhibition (AMI), which is a reflex phenomenon of the knee extensor muscle present in KOA. Chronic mechanical pain in KOA activates the AMI reflex phenomenon, weakening the quadriceps muscle, leading to disorders of joint biomechanics and joint instability generating a vicious circle. Decreasing the quadriceps force is caused by the mechanoreceptors inside the arthritic knee that in an reflex way alter the corresponding entry, which in turn reduces the effector output from the motoneuron alpha of the quadriceps. Reducing the excitability of alpha motoneuron is a consequence of the involvement of cortical pathways. KOA depending on the stage and its classification is treated differently and sometimes with a combination of different therapies. Hyaluronic acid (HA) injected into the knee with a high molecular weight and a high degree of cross-linking is a viable alternative to drug therapy with a medium-term effect from 6 to 12 months. A single dose injected with HA has an anti-inflammatory, analgesic and lubricating effect that lasts up to one year. The purpose of HA injection is to limit disease progression, control of chronic inflammation and mechanical pain. Muscle electrostimulation (EMS) is a type of electrotherapy that aims to train quadriceps muscle, inhibit pain during exercise, and excite motoneuron alfa. EMS training of quadriceps muscle extends to a minimum training period lasting 4 weeks with repetitions. The main purpose of EMS training is to reduce pain through different mechanisms, stimulation of motoneuron alpha, increase of muscle tone and rupture of vicious circle, pain - muscle weakness present in AMI. Novelty is the limitation of KOA progression by combining the quadriceps muscle training with EMS for increasing strength, and intra-articular knee infiltration with single dose intra-articular HA injection to decrease pain. Both therapies are widely used by different health specialists but are rarely used in limiting AMI, which is an important factor of maintaining joint destruction in KOA. Developing a therapeutic plan to train the knee extensor and to effectively lubricate the joint is beneficial because both therapies rapidly reduce pain and increase the quality of life when are combined.



# **CORIMF** 2019

Romanian-Jordanian Congress of Medicine and Pharmacy

**10<sup>th</sup> Edition** September 10-17, 2019 | Iasi, Romania

## **Abstracts**

**POSTERS**



# CORIMF 2019

Romanian-Jordanian Congress of Medicine and Pharmacy

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**Toxic hepatitis- a differential diagnosis challenge?!**

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Over the last decade, the diagnostic of liver diseases became more frequent in the infectious diseases pathology. The impact of the pathogens on the liver can vary greatly, presenting with a wide variety of manifestations from asymptomatic elevations in amino transaminases to acute liver failure, hepatic fibrosis or cirrhosis. The innovative diagnosis techniques made the fast and correct treatment possible. We reviewed the causes of acute liver failure with major cytolysis starting from the case of a middle age patient that presented in our hospital for the appearance of a petechial eruption, that had a tendency to fuse, distributed to the entire skin, with a predominance to the inferior limbs, gingival bleeding, fever and alteration of general status. On admission, the clinical examination showed a obese patient with a BMI of 41.3, with a history of diabetes and a triconarion by-pass, with a petechial lesions that had a tendency to fuse, tachycardic, with a tendency to hypotension with the liver that was at about 10 cm under the rib cage. The laboratory data showed, mild anemia, with important thrombocytopenia (Thrombocytes = 12.000/mm<sup>3</sup>), great elevation of the liver enzymes (ALAT = 3951 UI/L) with a direct bilirubin of 1.03mg/dl and gamma-GT = 229UI/L that indicates an acute liver failure. Also, the coagluometric indices (INR = 2.52/sec), kidney function (urea = 89 mg/dl), associating an important metabolic imbalance (alkaline reserve = 18mmol/L, uric acid = 10.9mg/dl), modified seric electrolytes (Na<sup>+</sup> = 134mmol/L, K<sup>+</sup> = 3.3mmol/L). The treatment of acute hepatitis with unknown etiology was immediately performed. The serology for Hepatitis A, B, C was ultimately negative. After a in depth anamnesis, we find out that the patient has a store with toxic produces (pesticides) and performed a disinfection a few days prior to admission. In the total period of admission, the complete therapy consisted in hepatic and gastric protectors, albumin, hemostatic substances, antibiotics and transfusions. The evolution was slowly favorable, with slow remission of the liver enzymes and hemorrhagic phenomena. A mild infection with soft symptoms due to *Clostridium difficile* was noticed that rapidly remitted.

Considering that in the north-eastern area of Romania, the acute hepatic failure is mainly due to alcoholic hepatitis, B and C hepatic virus chronic infection this case is particular by the toxic etiology. The evolution was slowly favorable, with persistent complete and correct therapy that finally led to the discharge of the patient with a normal hepatic function and the indication of motorization for a 12 months.

## **Sudden cardiac death after coronary artery bypasses grafting to the left anterior descending artery**

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Despite improvements in the care of patients with various heart diseases requiring surgical intervention, sudden cardiac death (SCD) remains a lethal complication. It was generally attributed to acute graft occlusion, cardiac tamponade, severe left ventricular (LV) dysfunction, graft disinsertion, arrhythmias, aortic dissection, acute valvular dysfunction or acute pulmonary embolism. The aims of the current study are to analyze SCD cases that occurred after coronary artery bypass grafting (CABG) of the left anterior descending artery (LAD) at the Cardiovascular Diseases Institute from Iasi, Romania and to identify potential causes of SCD following CABG. The authors analyzed 2808 patients that benefited from CABG involving grafting of the LAD between 2000-2018. A total of 89 patients (3.17%) (24 females, 65 males, mean age 63.42±14.42 years), died in the postoperative period, 5 of sepsis, 19 of multiple organ dysfunction syndrome, 1 suicide, 49 of cardiac causes and 15 of causes unmentioned in the medical files. In case of patients who died of cardiac causes, 32 had a poor preoperative state and benefited from emergency surgery for mechanical complications associated with acute myocardial infarction. From the rest of 17 patients, 12 developed severe postoperative complications (7 acute renal failure, 3 acute myocardial infarction, 1 prolonged intubation of 261 hours, 1 atrial fibrillation). Only 5 cases who died of suddenly installed malignant arrhythmias had no pre or postoperative risk factor. In case of the 15 patients where the cause of death was not mentioned in the medical records, 12 had pre or postoperative risk factors (6 postoperative acute myocardial infarctions, 1 preoperative critical state, 1 emergency CABG, 2 postoperative atrial fibrillation, 1 postoperative stroke, 1 postoperative acute renal failure). In 3 cases, no risk factors have been identified. Finally, only 8 (8.99%) of the 89 postoperative deaths can be considered SCD. In conclusion, there is a lack of standardization of SCD in certificate coding and definition and confusion in diagnosis of SCD following cardiac surgery is plurifactorial.

## Predicția progresiei hipertensiunii intraoculare la glaucom cu ajutorul rețelelor neuronale artificiale

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Construirea de modele neuronale în vederea predicției progresiei hipertensiunilor intraoculare (HTIO) la glaucom. Modelarea cu ajutorul rețelelor neuronale s-a realizat cu ajutorul simulatorului comercial Neurosolutions. Astfel se poate stabili numărul de straturi ascunse, numărul de neuroni din fiecare strat, diferitele forme ale funcției de activare și algoritmi de antrenare. Bazele de date construite conțin informații privind două loturi de pacienți cu HTIO tratate și netratate și un lot control de pacienți cu glaucom. Drept parametri de intrare pentru modelele neuronale s-au selectat: vârsta pacienților, vechimea afecțiunii, valoarea presiunii arteriale sistolice și diastolice, presiunea intraoculară minimă și maximă, valoarea PSD. Parametrii de ieșire au fost: riscul de conversie la 5 ani și raportul c/d. S-au construit pentru cele trei loturi de pacienți modele neuronale cu propagare înainte (Multilayer Perceptron), cu două straturi de neuroni ascunși. Numărul de neuroni din fiecare strat a fost variat între 2 și 10. Cea mai importantă etapă în modelarea cu rețele neuronale artificiale este etapa de validare în care datele de intrare sunt constituite din setul de date care nu a fost folosit în etapa de antrenare. Modelele neuronale construite au generat valorile de ieșire pentru aceste date. Rezultatele obținute au fost comparate apoi cu valorile experimentale. Performanțele modelelor neuronale au fost evaluate prin calcularea erorii pătratice medie (MSE), a coeficientului de corelație ( $r^2$ ) și a erorii procentuale (Ep). Pentru cele trei loturi de pacienți, cele mai bune performanțe s-au obținut cu rețele cu 2 straturi ascunse și câte 10 neuroni ascunși în fiecare strat. Valorile performanțelor în etapa de validare sunt cuprinse între  $1 \times 10^{-6}$  și  $9 \times 10^{-6}$  pentru MSE, între 0.999994 și 0.999999 pentru  $r^2$ , respectiv între 0.003 și 0.26 pentru Ep. Modelele neuronale folosite au demonstrat posibilitatea utilizării acestora în predicția progresiei hipertensiunii intraoculare la glaucom. S-au obținut rezultate foarte bune în etapa de validare, probabilitatea de a da răspunsuri corecte în etapa de validare este de 75 % (respectiv 9 răspunsuri corecte din 12 posibile). Rezultatele obținute în acest studiu sunt comparabile cu cele prezentate de alți autori în literatura de specialitate.



## **Necesitatea screeningului neonatal în fibroza chistică - mutațiile F508del și 1677delTA**

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Fibroza chistică, una dintre cele mai frecvente afecțiuni cu transmitere recesiv autosomală, este produsă de mutații în gena *CFTR*, localizată pe cromozomul 7. Disfuncția proteinei CFTR, care formează un canal ionic pentru clor, conduce la creșterea vâscozității secrețiilor și acumularea lor la nivel respirator și pancreatic. Peste 2000 de mutații *CFTR* au fost raportate, cu o mare variabilitate etnică. Cea mai întâlnită este F508del.

Prezentăm două cazuri pentru a ilustra variabilitatea etnică a mutațiilor și necesitatea screeningului neonatal.

Cazul 1: pacient de sex masculin, născut prematur (33 săptămâni), prezintă depresie respiratorie moderată neonatal și ileus meconial. Testarea genetică (la vârsta de 2 zile) relevă prezența mutațiilor F508del și 1677delTA. Se inițiază precoce terapie cu enzime digestive, dornază alfa și monitorizare periodică, cu evoluție lent favorabilă.

Cazul 2: pacientă de sex feminin, născută prematur (34 săptămâni), prezintă pneumopatie treanantă, insuficiență respiratorie și stagnare ponderală. Testarea genetică (la vârsta de 4 luni) relevă prezența mutațiilor F508del și 1677delTA. Sub terapie multiplă evoluția este nefavorabilă.

Mutația 1677delTA se asociază cu o formă gravă de boală și ileus meconial. Raportată foarte rar în alte zone, este întâlnită frecvent în bazinul Mării Negre.

Evoluția cazurilor ilustrează necesitatea screeningului neonatal, inițierea precoce a terapiei fiind vitală. 1677delTA trebuie să figureze printre mutațiile testate în prima linie, la pacienții din zona noastră.

## Tulburările de auz și malformațiile urechii în spectrul oculo-auriculo-vertebral

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Spectrul oculo-auriculo-vertebral (OAVS) este o anomalie de dezvoltare care implică structuri derivate din primul și cel de-al doilea arc faringian. Fenotipul este clinic eterogen și se caracterizează prin dezvoltarea anormală a urechii, mandibulei și defecte ale coloanei vertebrale. Incidența estimată este de 1/30,000 de născuți vii cu predominanță masculină (raportul masculin-feminin 3: 1). 50% -60% dintre pacienții cu OAVS au riscul de a avea hipoacuzie de conducere sau senzorială cauzate de malformațiile urechii, incluzând microtia, atrezia canalului auditiv extern și disfuncția trompei lui Eustache.

Am realizat un studiu clinic pe 10 cazuri de OAVS diagnosticate în Centrul de Genetică Medicală din Iași, având ca scop identificarea defectelor asociate aspectelor principale, evoluția clinică și corelarea semnelor clinice cu pierderea auzului. Grupul nostru a inclus 5 bărbați și 5 femei. Toate cazurile au fost sporadice și rezultă din sarcini dispensarizate ginecologic, cu evoluție aparent normală. Toate cele zece cazuri au avut asimetrie facială (6/10 hipoplazie dreaptă). Semnele clinice majore includ: microtia / anotia 10/10, muguri preauriculari 10/10, atrezia canalului auditiv extern 8/10, hipoacuzie de conducere 8/10, hipoacuzie mixtă 1/10, malpoziția dentară 8/10, anomalii vertebrale 4 / 10. Constatările ocazionale includ: malformații cardiace congenitale 4/10. Alte afecțiuni asociate au fost: un caz cu epilepsie și un altul cu talasemia minor. Testele genetice au fost normale. Evoluția în timp a fost staționară.

În concluzie, prezentăm evoluția în timp și importanța unei abordări multidisciplinare în managementul pacienților. Elementele clinice vor fi ilustrate la vârste diferite. Diagnosticul și intervenția precoce duc la îmbunătățiri semnificative, în special pentru hipoacuzie, auzul fiind critic pentru dezvoltarea limbajului, social și cognitive.

## Quo vadis- *Clostridium difficile*

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Bolile infecțioase sunt mai frecvente și / sau grave la pacienții cu diabet zaharat. Asocierea dintre această boală metabolică și creșterea susceptibilității la infecția cu *Clostridium difficile* nu este susținută de dovezi puternice, dar cele existente demonstrează că diabetul crește riscul de eșec al tratamentului cu Metronidazol, și implicit, riscul recureței infecției.

Metode. Ne-am propus să evaluăm prevalența diabetului zaharat în rândul pacienților internați pentru Enterocolita cu *Clostridium difficile* în Spitalul Clinic de Boli infecțioase “Sf. Parascheva”, Iași, pe o perioadă de 1an. De asemenea am dorit să vedem dacă asocierea infecției cu diabetul zaharat crește riscul de recăderi și face ca evoluția bolii să treneze.

Rezultate. Dintre cei 648 de pacienți testați pozitiv pentru toxinele *Clostridium difficile*, 102 au fost diabetici, 98% suferind de diabet zaharat de tip 2. Din totalul pacienților diabetici 77 se aflau la prima internare, iar 25 prezentau recăderi ale infecției. Am luat drept indicator mediana duratei de spitalizare pentru două tipuri de loturi: pacienți cu recăderi cu și fără diabet zaharat și fără recăderi, cu și fără diabet zaharat. Lotul A a fost format din 154 de pacienți aflați la primul episod de Colită cu C. difficile, dintre care 77 asociau și Diabet zaharat. Iar lotul B a fost format din 50 de pacienți cu recăderi ale colitei infecțioase, dintre care 25 diabetici. S-a obținut pentru lotul A o valoare a medianeii zilelor de spitalizare de 7 zile, respectiv 10 zile în cazul celor cu diabet, iar pentru lotul B valoarea medianeii zilelor de spitalizare a fost de 11 zile, respectiv 15 zile la pacienții diabetici. Complicațiile diabetului au fost observate într-un număr de 19 de cazuri, predominând complicațiile microvasculare (57,89% neuropatie diabetică, 31,57% nefropatie diabetică, 10,54% alte retinopatii).

Concluzii. Prolungirea duratei de spitalizare a fost observată în cazul pacienților cu patologie metabolică asociată, în cazul celorlalți pacienți evaluați comparativ fiind constatată o reducere cu aproximativ 7 zile a duratei de spitalizare. Cercetările noastre sugerează că diabetul este un factor de risc pentru apariția și recurența infecției cu *Clostridium difficile*.

## Repere în evoluția conceptului bio-psiho-social și relevanța acestuia în practica psihiatrică

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Psihiatria contemporană prezintă o vădită tendință de a adera la informatizarea și medicalizarea specifică celorlalte domenii medicale, cu beneficii ce derivă dintr-o organizare mai riguroasă și mai standardizată a informației, dar care atrag cu sine dezumanizarea relației terapeutice. Modelul bio-psiho-social este status quo-ul psihiatriei contemporane. Încă de la începuturile sale, acesta a reprezentat o reacție față de biologizarea sau psihologizarea psihiatriei și față de reduționismul antipsihiatriei. În psihiatrie, modelul bio-psiho-social a permis integrarea celor două concepții privind tulburările psihice: psihiatria biologică și perspectiva psihodinamică cu accent pe dimensiunile psihologice cu reflectare socială. În acest context, modelul bio-psiho-social reprezintă cea mai adaptată perspectivă din psihiatrie. Dezacordul privind psihiatria biologică este datorat în parte reacției la practica bazată pe dovezi, utilizată de industriile farmaceutice și de asigurări sau de planurile naționale de sănătate pentru a favoriza intervențiile farmacologice în detrimentul celor psihosociale. Modelul psihosocial este considerat un antidot, dar ar putea la fel de bine să constituie o cauză, deoarece nu a reușit să aducă argumente empirice solide pentru a rezista biologizării psihiatriei. Modelul bio-psiho-social are o utilitate incontestabilă în diagnosticul integrat centrat pe persoană, care se reflectă în sistemul multiaxial de clasificare a tulburărilor psihice. Conceptul bio-psiho-social se reflectă în întreaga activitate a școlii de psihiatrie de la Socola, pornind de la Prof. Brânzei până în prezent. Lucrarea de față își propune elucidarea și sistematizarea reperelor evoluției modelului bio-psiho-social, redând meritele tuturor creatorilor săi și relevând importanța sa fundamentală în asistența psihiatrică contemporană. Totodată, urmărește sublinierea relevanței acestui concept în corelație cu noțiunea de calitate a vieții, pilon de bază în abordarea inițială și în urmărirea pe termen lung a eficienței intervenției terapeutice multidimensionale a cazurilor psihiatrice.

## **Extensive Melolabial Flap as a final reconstruction option of nasal defect due to facial carcinomatosis**

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**Introduction:** We present you the case of a 84-year-old patient with multiple cardiovascular comorbidities and a past medical history of facial Baso-celular Carcinomatosis (upper lip, left eye inner canthus, left eye outer canthus, left malar region, glabellar and central frontal region) who underwent multiple surgical procedures between 2014-2017. The patient is admitted in November 2018 for an impressive sized lesion of the nasal pyramid, extended to both nasolabial grooves. The clinical examination revealed a poorly delimited tumor and strongly adherent to the nasal bones and upper cartilage structures. Highlighting the importance of using a large-sized local fasciocutaneous melolabial flap in the reconstruction of nasal defects with exposed cartilage and bone.

**Materials and methods:** Surgical excision of the lesion was done within oncological limits, including all affected layers: nasal pyramid periosteum and partially the nasal septum and upper alar cartilages. Therefore, a soft tissue defect of approximately 4/6 cm that was communicating with the right nasal cavity was left to be surgically reconstructed. Due to the fact that most reconstruction possibilities with local flaps were already explored during previous surgeries and the patient's age and associated pathologies represent a relative contraindication for free flap microvascular transfer, we chose an extended 4,5/7 cm right melolabial flap. We opted for a proximal pedicle flap, based on the communication between the angular artery and ophthalmic artery branches. As the anatomo pathological result of Squamous Cell Carcinoma concluded the lesion was completely removed within oncological limits, a revision of the flap was performed 6 weeks later: cutting the flap pedicle (that used to partially amputate the visual field of the right eye) and a two-staged reshaping of the flap (for a better functional result and a more pleasant esthetical look).

**Conclusions:** The melolabial extended flap is a high quality secondary alternative in the reconstruction of large soft tissue defects of the nose, with bone and cartilage exposure. It is characterized by a reliable vascularization, a remarkable elasticity and malleability, allowing a primary closure of the donor site, with minimal morbidity. The proprieties and color of the flap are similar to the excised tissue. Moreover, it has the advantage of covering not only surface defects, but also volume ones.

## **Negative-Pressure Wound Therapy (NPWT) – Successful alternative method in full-thickness burn of the feet**

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**Introduction:** Burn wounds, although uncommon in the foot (having a incidence of only 7,7%), represent a uniquely challenging case for physicians. They are characterized by a high morbidity and an important risk of disabling complications. We present the case of a 43 years old man, driver, victim of a work accident, who suffered full-thickness burns by flame and contact on approximately 10% TBSA, IIB-III degree, on both feet, thighs and left anterior cubital region.

**Objective:** Highlighting the importance of Negative-Pressure Wound Therapy in the treatment and secondary healing of burn wounds of the feet.

**Methods and materials:** Firstly, escharectomy was performed, with the excision of the devitalized tissue. Antalgic, hydroelectrolytic and supportive treatment was initiated. 48 hours later, after reevaluation of the wounds, NPWT of the left foot was instituted, while the rest of the wounds were treated by autologus skin grafting. Every 5 days, changing of the NPWT dressing was performed, revealing an accelerated healing of the burn from IIB to IIA degree. Moreover, a high rate of centripetal epithelization was noticed. 16 days after initial treatment with negative pressure, the wound was 90% healed. Ideally, this type of lesions should be completely healed in less than 21 days. This result can not be obtained by surgical treatment only.

**Conclusions:** In particular situations, like the full-thickness burn of the feet, NPWT represents a superior treatment to the surgical approach. This therapy is minimal invasive, well tolerated by the patient, keeping the functional, sensitive and mechanic integrity of the specific region. Furthermore, it ensures a sterile microenvironment, increasing local vascularization and cellular multiplication rate. The possible complications on long term are minimal. Other advantages include acceleration of the healing process, reducing the total care costs and the length of stay in hospital.



## **Aprecierea oboselii școlare la un lot de adolescenți de la Colegii Tehnice din zona Moldovei**

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Introducere: oboseala este un fenomen fiziologic, care apare în condițiile depășirii capacității de efort fizic și neuropsihic a organismului uman. Este un fenomen ce trebuie atent urmărit la elevi. deoarece aceștia pot dezvolta ușor o reacție de suprasolicitare asociată frecvent cu apariția eșecului școlar.

Material și metodă: studiul a fost realizat pe un lot de 97 adolescenți din clasa a XII a de la Colegii Tehnice din 2 județe ale Moldovei (Bacău - 47 elevi și Suceava – 50 tineri). Tinerii au completat un chestionar ce conține întrebări referitoare la prezența fenomenului de oboseală și la semnele clinice care apar în acest caz. Prelucrarea rezultatelor s-a făcut cu ajutorul testului Pearson.

Rezultate și discuții: la întrebarea "te simți obosit?" rezultatul dominant este de rareori (64,94%,) deși este vorba de tineri din clasa a XII a. Pe clase diferențele obținute sunt nesemnificative statistic ( $p > 0.05$ ,  $f=2$ ,  $\chi^2=5,484$ ) rezultat surprinzător pentru tinerii care vor susține examenul de maturitate, dar preocuparea lor pentru acest examen este destul de modestă. Comparativ cu colegii de clasă elevii resimt oboseala în egală măsură (la fel), în majoritatea cazurilor (50,51%). Diferențele calculate pe clase sunt nesemnificative statistic ( $p > 0.05$ ,  $f=2$ ,  $\chi^2=1,806$ ) și evidențiază existența unor solicitări școlare asemănătoare la elevii din cele două colectivități studiate. La întrebarea legată de prezența oboselii matinale apar 51,54% adolescenți care se simt obosiți dimineața, probabil datorită unui somn de noapte insuficient. Pe clase diferențele calculate sunt nesemnificative statistic ( $p > 0.05$ ,  $f=2$ ,  $\chi^2=0,958$ ), ceea ce ne orientează către existența unui program deficitar de somn la elevii de la ambele licee studiate. Oboseala apare mai ales la sfârșitul zilei (40,20% elevi) și la sfârșitul săptămânii de lucru (40,20%), diferențele calculate fiind nesemnificative statistic. În momentul în care apare oboseala elevii prezintă cefalee (35,05%), dureri oculare (27,83%) sau adormire dificilă (20,61%).

Concluzii: studiul fenomenului de oboseală școlară este important, deoarece poate explica existența unui procent mare de elevi care ratează examenul de maturitate. Din păcate, la lotul studiat rezultatul nu este încurajator, deoarece nu apare o oboseală marcată, așa cum ar fi de așteptat pentru elevii din clasele a XII a.

## The succesful use of NPWT and topicals in the management of lower limb trophic venous ulcers: case presentation

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**Introduction.** We will present the case of a 40-year-old female patient with a semi-circular soft tissue defect of the 2/3 distal left leg of about 4% TBSA. The wound was caused by a trophic ulcer, complicated with *Pseudomonas aeruginosa* infection, with an evolution of about 2 years. The patient had vascular comorbidities (chronic venous insufficiency class 6 CEAP) and metabolic disease (diabetes type II insulin treated). One year ago, the ulcer was operated in the vascular surgery department, where necrectomy was performed and the defect was covered using a split thickness skin graft. The graft intake was not completely succesful and the defect increased in size, for which reason the patient was addressed to the plastic surgery department 10 months after the initial surgery.

**Materials and Methods.** Upon admission, the surgical debridement of the defect was performed and then the negative pressure device was installed at a continuous 100 mmHg medium pressure. The consumables (foam, hydrofilm, etc.) were changed at a 3 day interval for a period of 12 days. The results of the bacteriological examination before installing the NPWT were positive with *Morganella Morganii* and *Pseudomonas Aeruginosa*; at the end of the NPWT therapy, the cultures turned out negative. Within the same period, the wound bed developed significant modifications: the soft-tissue defect was covered with healthy, well vascularised granular tissue. In the 13th day of admission, under loco-regional anesthesia, the granular tissue excision was performed. From the ipsilateral thigh, split thickness skin grafts were harvested using the electrical dermatoma (thickness of 0.4mm), expanded and positioned at the defect site. Hyaluronic acid based topicals were used at the donor area as well to stimulate and accelerate the healing process. The grafts were 100% integrated into the defect and the patient was able to sustain normal daily activity at 21 days after surgery.

**Conclusions.** Negative pressure therapy is an efficient technique for the management of apparently lost causes. It produces minimal discomfort for the patient, provides a sterile micromedium, stimulates local vascularisation and also cellular multiplication. It helps to reduce the defect size, accelerates healing, shortens hospitalization time, avoids repeated patient anesthesia for surgical debridements and offers a greater rate of graft integration.

## Local flaps in surgical reconstruction of the post-tumoral nasal defects

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**Aim.** The nasal region, placed in the central part of the face, is a very important functional and aesthetic segment, always exposed to trauma and frequently involved in the development of tumors. Although small, the nasal post-tumoral defects are usually complex due to the different excised structures (skin, cartilage, mucosa). Therefore such defects are not indicated to be reconstructed using skin grafts. From aesthetical and functional point of view, local flaps are eligible for this aim. Frontal and genian regions are the first to be chosen as donor sites.

**Methods and materials.** We conducted a retrospective study on 126 patients with facial malignant tumors, surgically treated during 5 years. The nasal region was affected in 57 cases, most of them (41 = 71.9% inflamed and ulcerated, with long evolution of 9 to 10 years, and confirmed as basal cell carcinomas). In 31 cases the tumors occupied the *dorsum nasi* and epichantal region, in 12 cases both dorsal and lateral aspect of the nose were invaded, in 6 cases the alar segment was invaded, in 5 cases the tip of the nose was affected and in 3 cases the columellar region. For 11 cases we performed the excision of all anatomic layers, including cartilage and mucosa. For the rest of the patients (46) we had to excise only the soft tissues as the tumors were more superficial. To reconstruct the postexcisional defects we used local flaps in all the cases. We combined local flaps with full thickness skin grafts in 7 patients, in order to reconstruct the mucosal area. For the cartilage reconstruction we used septal grafts in 5 cases. Frontal flaps were selected to be used in 36 patients (24 in defects located on *dorsum nasi* and medial epichantus, 12 defects occupying both dorsal and lateral aspect of the nose). We used glabellar flaps in 7 cases with medial epichantal defects and nasogenian flaps in 9 cases with alar and columellar areas to be reconstructed. For the tip of the nose, the used reconstruction was the advancement flap from the dorsal and lateral nose.

**Results and conclusions.** The postoperative evolution was good in most of the cases (54) and we had to perform flap remodeling in 15 cases. Oncological follow-up was performed for all the patients. In 6 cases reexcision and flap repositioning was necessary. Local flaps are a good option in post excisional nasal defects from aesthetic and functional point of view. The supratrochlear and supraorbital flap's versatility offers the possibility to reconstruct soft tissues defects both on the *dorsum nasi* and lateral aspects of the nose.

## Concepts of peripheral nerve regeneration and repair with nerve grafts. A personal experience

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**Introduction:** The incidence of brachial plexus injuries is rapidly growing due to the increasing number of high-speed motor-vehicle accidents. These are devastating injuries leading to significant functional impairment of the patients.

**Objectives:** The aim of the operative intervention was to obtain the best functional result, including at the level of the hand, that was possible in view of the initial lesions and the intraoperative findings. Another goal was treating brachial plexus partial palsies with nerve grafting in different methods. We used sural grafts, artificial grafts and muscle-in-vein nerve grafts from 3 to 6 cm long.

**Material and method:** Nerve grafting is the predominant technique for clear cut injuries with a healthy proximal stump and with no axial damage. The outcome is influenced by the length of the nerve graft, the presence of scar tissue at the wound site, the number of grafts used, the presence of a healthy proximal stump available for grafting and the nerve gap to be covered. We performed surgeries on 12 patients with brachial plexus injuries. In 3 cases we applied only nerve grafts from sural nerve, on 5 patient we used combined methods of nerve grafting (sural nerve, muscle-in-vein nerve grafts, neurotization and neurorraphy), and in 4 patients we used only muscle-in-vein-nerve grafts. The results associated with each type of lesion and each type of nerve repair were assessed according to the function of the muscles that were innervated by the recipient nerve. The study was performed during January 2016-November 2018. The outcome was measured at 1, 3, 6, 12 months postoperatively.

**Results:** The outcome was excellent in 5 cases ( $>0,75$ ) good in 3 cases ( $>0,60$ ), medium in 3 cases ( $>0,50$ ) and poor in 1 case ( $>0,30$ ) (Motor Scale Composite).

The MSC improved by an average of 69 and 78% at 12 and 18 months, respectively. The movement scores improved to greater than or equal to 50% range of motion in most patients, and the contractures were usually mild or moderate. Follow-up physical and occupational therapy evaluations confirm these patients' functional status.

A statistical analysis revealed that an operative delay of less than six months was a significant factor with respect to recovery of the function of the biceps ( $p = 0.003$ ). They also obtained relief of the pain in 10 from 12 cases.

**Conclusions:** The use of nerve grafts in brachial plexus palsies in an effective method of reconstruction for specific cases where trauma is involved. Timing of surgery is a very important to achieve a good functional recovery.

## Efficiency of hirudotherapy (medical leech therapy) in plastic surgery

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**Aim:** Use of the medicinal leech, *Hirudo medicinalis*, is a theme of ancient and modern medicine. Efficacy for treatment of venous congestion ranges 65-85%. Hirudotherapy provides an alternative route for the removal of pooled venous blood, which has the advantage of reducing capillary and hydrostatic pressure and improving reperfusion while the body works to restore native channels of venous egress.

**Method:** Our study is based on 23 patients (18 men and 5 women) who suffered amputations of fingers and thumb in 19 cases and, in the other 4, the patients suffered complete amputation of the ear auricle. In all ear replantations, we performed the arteriography and, just in one case, the venous reconstruction was possible. Even though in 12 cases of digital replantation we managed to perform the venous reconstruction, the leech therapy was necessary and beneficial. Leech therapy began with the first sign of venous congestion. We applied the leeches at the level of the replanted segment where we created a tegumentary flare for bleeding. Their time of action lasted until their spontaneous detachment. Signs of venous congestion improved after the first day of using leeches.

**Results / Discussion:** The therapy was maintained on average 5 days. We didn't record any *Aeromonas hydrophila* (a gram negative germ located in the gut of the leech) infection and no prolonged bleeding. All the replantation results were good with the survival of the amputated segment.

**Conclusion:** Hirudotherapy (leech therapy) plays an essential role in postoperative management of the microsurgical replantations for the management of the venous congestion. It is a cheap, safe, easy to use and beneficial therapy.

### **Meningita nosocomială – dificultăți de tratament**

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Meningita bacteriană nosocomială rămâne una dintre cele mai mari provocări terapeutice în zilele noastre, cu atât mai mult cu cât evoluția bolii poartă întodeauna amprenta mediului spitalicesc. Prezentăm două cazuri clinice de meningită nosocomială care au determinat dileme terapeutice cu consecințe resimțite în evoluția bolii și implicit cu prelungirea duratei de spitalizare.

Prevenirea și gestionarea meningitei bacteriene nozocomiale reprezintă o provocare substanțială,

în special când sunt provocate de agenți patogeni multidrog rezistenți. Deși cazurile descrise au răspuns bine la terapia antimicrobiană instituită, reprezintă exemple edificatoare în ceea ce privește pericolul suplimentar pe care mediul spitalicesc îl reprezintă în evoluția unui pacient și pentru care sunt necesare a fi sporite măsurile de combatere.



## **Solvent influence on the electronic spectra of 1,6-Diphenyl-1,3,5-Hexatriene in ternary solutions: striking features**

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DPH (1,6-diphenyl-1,3,5-hexatriene) is a small uncharged molecule with a rod-like structure that absorbs and emits with high efficiency. DPH become, in the last decades, one of the most frequently used chromophore for its role in appreciation of microviscosity and anisotropy of the heterogeneous microsystems. DPH is used in fluidity estimation of the model and natural membranes because in hydrated environment does not show fluorescence but it show fluorescence in lipid bilayer. In non-hydroxyl solvents, DPH shows an intense and structured electronic spectrum both in absorption and emission. In some solvents DPH has quasi-mirror symmetry with keeping the vibronic feature.

Photochemical and spectral characteristics of DPH depend on environmental factors such as the temperature, solvent nature, etc. The higher of the solvent refractive index, the greater the red-shift of the DPH absorptions bands is. The solvents with high polarizability lead to a high fluorescence yield.

The study about the solvent influence on the DPH electronic spectra is realized in this paper in order to analyze different comportment of this molecule in the protic and non-protic solvents. We present the spectroscopic results in order to explain the striking displacement observed in electronic (absorption and fluorescence) spectra in different solvents. The experimental results were correlated with those obtained in through molecular dynamics simulations of multicomponent solutions which revealed non-homogenous regions formation in ternary DPH aqueous solutions.

The spectral shifts measured in electronic spectra are discussed on the basis of the theories regarding the solvent influence on absorption and fluorescence electronic bands.

## Aprecierea obiceiurilor alimentare ale unui lot de adolescenți din mediul rural

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**Introducere:** alimentația este un factor extern ce joacă un rol important în asigurarea creșterii și dezvoltării normale a copiilor și adolescenților. Cunoașterea obiceiurilor alimentare ale populației va permite orientarea programelor educaționale nutriționale către direcțiile în care sunt necesare intervenții. A da fructe, și mai ales mere, la elevii din mediul rural nu aduce nici un beneficiu legat de formarea unor obiceiuri alimentare sănătoase.

**Material și metodă:** studiul a fost realizat pe un lot de 89 elevi de la Școala generală din comuna Dumești jud. Vaslui. Au fost examinați elevi din clasele a VII a și a VIII a cu vârste cuprinse între 12 și 14 ani. Adolescenții au completat un chestionar de frecvență săptămânală a consumului de alimente. Investigația a fost orientată pe două direcții reprezentate de: aportul alimentar matinal/la gustare și consumul săptămânal de lapte, ouă, pâine și cartofi. La consumul săptămânal pe grupe de alimente variantele de răspuns sunt: zero – 1 dată – de 2/3 ori – de 4/7 ori. Prelucrarea rezultatelor s-a făcut cu ajutorul testului Pearson.

**Rezultate și discuții:** aportul alimentar matinal este recunoscut de 70,79% tineri, cu diferențe ne semnificative statistic ( $p > 0.05$ ,  $f=2$ ,  $\chi^2=1,030$ ) în funcție de vârsta elevilor. Gustarea preferată este reprezentată, mai ales, de dulciuri (58,42%) sau de chipsuri (51,68%), rezultat îngrijorător deoarece există riscul apariției obezității. Aportul echilibrat de lapte (de 4-7 ori pe săptămână) este recunoscut doar de 23,14% tineri, chiar dacă este vorba de elevi din mediul rural. Diferențele sunt ne semnificative statistic ( $p > 0.05$ ,  $f=6$ ,  $\chi^2=6,474$ ) și orientează către existența unor obiceiuri alimentare asemănătoare. Consumul adecvat de ouă (de 4-7 ori pe săptămână) este afirmat de 31,46% elevi, diferențele calculate pe vârstă fiind ne semnificative statistic ( $p > 0.05$ ,  $f=6$ ,  $\chi^2=4,123$ ). Pâinea este prezentă de 4-7 ori pe săptămână în meniurile a 87,64% tineri, existând 12,36% elevi ce o consumă de 2-3 ori (7,86%) pe săptămână, de 1 dată (2,24%) sau nu o consumă (2,24%). Cartofii sunt prezenți în alimentația elevilor, în special de 4-7 ori (39,32%) sau de 2-3 ori (39,32%), diferențele calculate pe vârstă fiind ne semnificative statistic ( $p > 0.05$ ,  $f=6$ ,  $\chi^2=10,306$ ).

**Concluzii:** alimentația elevilor din mediul rural ridică numeroase probleme, chiar dacă majoritatea produselor alimentare consumate provin din gospodăria proprie. Programele de susținere nutrițională trebuie orientate corect, pornind de la rezultatele studiilor realizate la nivel național.

## **Vaccinările în managementul bolnavului cu fibroză chistică (mucoviscidoză)**

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Una dintre întrebările adresate de către medicul de familie sau de către părinții bolnavului cu fibroză chistică (FC) este dacă acesta poate fi vaccinat. Având în vedere că bolnavii cu FC sunt predispuși la boală hepatică, ei trebuie incluși în grupul-țintă pentru vaccinarea anti-hepatită B. Simptomele și complicațiile rujeolei pot agrava simptomatologia respiratorie a bolnavilor cu FC. Prin urmare, vaccinarea împotriva rujeolei combinată cu cea pentru oreion și rubeolă trebuie efectuată acestor bolnavi. Vaccinarea pentru infecția cu virusul varicelo-zosterian trebuie efectuată din multiple motive: deteriorare pulmonară, tratament cu steroizi, imunocompromiși după transplant. Întrucât infecția cu virus gripal este un trigger pentru debutul unei infecții pulmonare bacteriene, se recomandă vaccinarea anuală. Infecția pneumococică este încă o problemă majoră de sănătate, astfel încât vaccinarea trebuie să mențină imunitatea protectoare. Infecția cu virus sincițial respirator (VSR) este principala cauză a infecțiilor virale ale căilor respiratorii inferioare, conducând la complicații și spitalizare prelungită. Se recomandă vaccinarea împotriva VSR. În adolescență și când se ia în discuție transplantul, întârzierile în vaccinare trebuie remediate. Vaccinarea trebuie amânată doar în anumite condiții (de exemplu, tratament cu Prednisolon oral). Concluzii. Prevenția diferitelor boli prin utilizarea adecvată a vaccinurilor este cea mai bună alegere. FC însăși nu este o contraindicație pentru vaccinarea de rutină. Bolnavii cu FC trebuie să primească vaccinurile din calendarul național, dar și vaccinuri opționale.

**Aromatase expression in invasive breast cancer – is it useful?***Ioana Armașu, Delia Gabriela Ciobanu, Victor Ianole, Veronica Mocanu,**Ioana Hristov, Ioana Vasiliu, Cristian Lupașcu, Dragomir N. Serban,**Cristina Preda, Ionela Lăcrămioara Serban**„Grigore T. Popa” University of Medicine and Pharmacy, Iași,**Faculty of Medicine*

**Introduction.** Aromatase inhibitors represent the most important drugs used in managing hormone-sensitive breast cancer cases. However, the patients that may benefit the treatment are selected based on estrogen (ER) and progesterone (PgR) receptors statuses, instead of intratumor aromatase immunoreactivity.

**Aim.** To evaluate aromatase expression in all tissue compartments of the breast (tumor, stroma and adipose tissue) in order to assess immunostaining characteristics relative to the histopathological variables of breast carcinomas.

**Patients and Methods.** Using polyclonal aromatase antibody immunohistochemistry technique we assessed the aromatase immunoreactivity (as intensity and percentage scores) in 70 tissue samples from pre- and postmenopausal breast cancer patients.

**Results.** Aromatase immunopositive cells were found in all breast tissue compartments: tumor cells (95.7%), stroma (58.6%) and adipose tissue (94.3%). The aromatase expression in tumor cells was inversely correlated with tumor grading ( $\rho=-0.361$ ,  $p=0.027$ ), and positively correlated with ER ( $\rho=0.143$ ,  $p<0.001$ ). Dividing the study group by age 55 (theoretical defining value for menstrual status), tumor aromatase expression was stronger correlated, statistically significant, with ER ( $\rho=0.410$ ,  $p<0.001$ ) in pre- and perimenopausal women, and not in postmenopausal women ( $\rho=0.131$ ,  $p=0.899$ ). Although the level of statistical significance was not reached ( $p>0.05$ ), negative associations with fibrocystic breast disease ( $\rho=-0.342$ ), tumor grading ( $\rho=-0.385$ ), tubular differentiation ( $\rho=-0.414$ ), PgR ( $\rho=-0.224$ ), and Ki67 ( $\rho=-0.222$ ), and a positive association with lymph node invasion ( $\rho=0.337$ ) were observed in pre- and perimenopausal, while in postmenopausal women this association was observed, to a lesser extent, with tumor grading ( $\rho=-0.347$ ) parameters and Ki67 index ( $\rho=-0.133$ ).

**Conclusions.** Aromatase positively associated with ER in pre- and perimenopause women, suggesting the importance of local estrogen synthesis in cancer pathogenesis, aside from circulating estrogen levels. In post-menopause, other estrogen biosynthesis pathways may have a greater contribution to local estrogen production than the aromatase mediated pathway. Aromatase immunoreactivity tended to be inversely associated with cell differentiation and proliferation tumor markers, larger studies being required to assess the prognostic value of aromatase immunohistochemistry.

## **Corelația între stresul oxidativ și sindromul metabolic**

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Stresul oxidativ (SO) se numără printre cele mai studiate și totuși încă incomplet elucidate provocări ale medicinei moderne. Rolul său derivă din implicarea sa aparte în apariția și progresia celor mai importante afecțiuni contemporane generatoare de morbiditate și mortalitate: ateroscleroza (cu toate complicațiile sale, inclusiv infarct miocardic, insuficiență cardiacă, accident vascular cerebral), diabetul zaharat tip 2, cancerul, afecțiuni cronice (respiratorii, hepatice, renale), bolile degenerative, boala Alzheimer, boala Parkinson, cataractă, glaucom. Stresul oxidativ reprezintă un dezechilibru între producerea excesivă de specii reactive de oxigen (SRO) și capacitatea mecanismelor naturale de eliminare și apărare față de acestea. Sindromul metabolic reunește o constelație de factori fiziologici, biochimici, clinici și biologici interconectați ce identifică persoanele cu risc crescut de a dezvolta boli cardiovasculare și metabolice, astfel încât prezența sindromului metabolic conferă un risc de două ori mai mare de apariție a bolii coronariene și a accidentului vascular cerebral. Sindromul metabolic se caracterizează printr-o modificare a stresului oxidativ și o inflamație subclinică, ambele responsabile de inițierea și progresia procesului aterosclerotic. Există dovezi privind implicarea stresului oxidativ atât în sindromul metabolic conform definiției acceptate, cât și în fiecare dintre componentele sale. Datele clinice existente până în prezent au conturat necesitatea unor studii clinice care să evalueze modul în care terapiile antioxidante pot ameliora atât stresul oxidativ cât și evoluția sindromului metabolic în totalitate sau doar în ceea ce privește doar unele dintre componentele sale. Un rol important în aceasta temă îl au radicalii liberi, care prin definiție au o viață foarte scurtă, dar sunt produși continuu, astfel încât antioxidantul ar trebui să fie aproape constant prezent la locul de formare al acestora. Radicalii liberi, cunoscuți în chimie de la începutul secolului XX, desemnau inițial noțiunea de compuși intermediari în chimia organică și anorganică. Scăderea temporară a concentrației de antioxidant într-o zonă cu un stres oxidativ crescut duce la acumularea de alterări oxidative ce nu pot fi prevenite de administrarea ulterioară de antioxidanți.

## **Evoluția morbidității în meningita cu virusul West Nile în Spitalul Clinic de Boli Infecțioase Sfânta Parascheva Iași**

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**Introducere:** Având un mare potențial epidemic și dezvoltând forme severe de boală, meningita virală a devenit o reală problemă de sănătate publică. Virusul West Nile (WNV) este un flavivirus care se transmite la om prin intermediul țânțarilor. România s-a confruntat în 1996 cu un focar major de encefalită cu WNV. După 1996, odată cu focarul epidemic major din București, epidemiologia și dominantele clinice ale WNV s-au diversificat.

**Obiectiv:** Analiza particularităților epidemiologice și clinico-evolutive ale cazurilor de meningită cu virusul West Nile internate în Spitalul Clinic de Boli Infecțioase Iași în anul 2018.

**Material și metodă:** Studiu retrospectiv care a inclus 28 cazuri de meningită cu virusul West Nile internate în clinica în perioada ianuarie-decembrie 2018. Virusul a fost izolat din LCR prin tehnici de biologie moleculară.

**Rezultate:** Majoritatea cazurilor (86%), au fost înregistrate în lunile august și septembrie, vârstă medie 65 ani (61-70 ani), predominând sexul masculin (60%), cu proveniența din mediul rural. Meningita s-a asociat cu comorbidități în 32% din cazuri, reprezentate de diabet, hepatită cronică, neoplasme, patologie cardiacă. LCR-ul a fost în special clar (82%), cu un număr redus de elemente (sub 100 celule/mm<sup>3</sup>), în 46% din cazuri cu predominanță limfocitară, albuminorahie sub 2g/l (72%), hiperglicorahie (93%). Tabloul clinic a fost dominat de cefalee și confuzie, cu prezență febrei și a vărsăturilor în jumătate de cazuri, iar sindromul de contractură meningeală în doar 22 de cazuri (79%). Evoluția a fost favorabilă în 24 de cazuri (86%); s-au înregistrat 4 decese prin disfuncție multiplă de organ.

**Concluzie:** Cu frecvență redusă în ultimii 10 ani, meningita cu virusul West Nile a înregistrat o morbiditate crescută în anul 2018 în Nord-Estul României. Aspectele clinice atipice întârzie adesea prezentarea la medic și stabilirea precoce și corectă a diagnosticului, cu impact negativ asupra evoluției și prognosticului. Îmbunătățirea măsurilor igienico-sanitare și a celor de luptă contra vectorilor ar putea contribui la scăderea morbidității prin această boală.

## **Hepato-renal syndrome to a patient with comorbidities**

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Haemorrhagic fevers forms a group of infectious diseases caused by RNA viruses belonging to the Bunyaviridae family, clinically characterized by fever, multiple hemorrhages, severe toxemia and a severe evolution which is often deadly having an endo-epidemic character.

Humans can get the disease through contact with the rodents and it has non specific symptoms: fever, myalgia, abdominal pain, vomiting and oliguria (prodromal phase). Hantavirus infection can be overlooked because of its polymorphism and non-specific symptoms and confused with other viral infections (leptospirosis and rickettiosis).

We present a patient having a known cardiac pathology: atrial fibrillation (Afib) and dilated cardiomyopathy (DCM) noncompliant to treatment, admitted in the 3rd day of the disease manifested with fever, nausea, vomiting and diarrhea.



### **Exantemul la adolescent și adultul tânăr**

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**Introducere.** Exantemul la adultul tânăr pune mari probleme de diagnostic diferențial, fiind întâlnit într-o multitudine de afecțiuni de etiologie infecțioasă dar și noninfecțioasă.

**Material și metodă.** Prezentăm cazul unui tânăr de 22 de ani internat în Clinica de Boli Infecțioase Iași.

**Rezultate.** Pacientul se prezintă în clinică la 2 zile de la debut, cu febră, disfagie, ragade la nivelul comisurilor bucale, erupție generalizată, pruriginoasă, micropapuloeritematoasă, cu arii de confluență la nivelul antebrățelor și toracelui anterior. Antecedentele personale patologice sunt nesemnificative. Pacientul lucrează în IT. Examenul clinic la internare: stare generală ușor influențată, exantem micro-papulo-eritematos, enantem la nivelul palatului moale, normal clinic la nivelul celorlalte aparate și sisteme. S-a pus problema diagnosticului diferențial cu boli neinfecțioase precum: dermatita de contact (pacientul declarând schimbarea gelului de duș), leucoza acută în contextul leucocitozei cu limfomonocitoză, etc. și cu afecțiuni de etiologie infecțioasă: HIV, mononucleoza infecțioasă, scarlatina, hepatita acută virală la debut cu sindrom Gianotti- Crosti. Serologia HIV a fost negativă, parametri hepatici normali, bilirubina discret crescută pe baza bilirubinei indirecte, markeri virali pentru hepatita B și C negativi, IgM pentru virusul Ebstein-Barr pozitiv, iar exudatul faringian pentru streptococul beta-hemolitic grup A a fost de asemenea pozitiv. Diagnosticul final a fost: Mononucleoza infecțioasă, Angina streptococică, Observație Sindrom Gilbert. Evoluția sub tratament cortizonic și antibiotic a fost favorabilă.

**Concluzii.** Exantemul febril la un pacient tânăr pune mari probleme de diagnostic diferențial la granița dintre patologia infecțioasă/noninfecțioasă. A fost un caz fericit în condițiile unei etiologii infecțioase multiple: virală (mononucleoza infecțioasă) și bacteriană (angina streptococică/scarlatina).

## **Infecțiile asociate îngrijirilor medicale - update privind infecția cu *Clostridium difficile***

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Infecția cu *Clostridium difficile* reprezintă o importantă problemă mondială a sistemului de sănătate publică. În prezent, *Clostridium difficile* este responsabil pentru 48% dintre infecțiile gastrointestinale asociate asistenței medicale în spitalele de urgență din Europa și a devenit una dintre cele mai frecvente cauze ale infecțiilor asociate asistenței medicale în spitalele din SUA. *Clostridium difficile* este un bacil gram-pozitiv, anaerob, ce formează spori și produce toxine. Poate determina infecții nozocomiale de amploarea unei epidemii din ce în ce mai virulente și severe. Apariția unui dezechilibru în ponderea florei saprofite normale din tubul digestiv ca urmare a unor factori supraadăugați, poate determina eliminarea concurenței microbiene a altor germeni saprofiți și dezvoltarea excesivă a populațiilor de *Clostridium difficile*. Debutul simptomatologiei are loc după minim 48 de ore de la spitalizare sau în primele 4 săptămâni de la externarea dintr-o unitate spitalicească. Simptomatologia presupune diaree apoasă sau cu sânge, dureri abdominale, febră, greață, scăderea poftei de mâncare, deshidratare, scădere în greutate. Pentru stabilirea diagnosticului cert e necesară izolarea toxinelor A și B ale *Clostridium difficile* din materiile fecale, determinarea glutamat dehidrogenazei (GDH) din materiile fecale, determinarea genelor toxinelor clostridiene A și B prin PCR – *gold standard*-ul de diagnostic. Tratamentul etiologic presupune administrarea orală de Metronidazol 500 mg x 3/zi, timp de 10-14 zile, sau Vancomicina 125 mg x 4/zi, pe o perioadă de 10-14 zile. Tratamentul chirurgical se indică în perforație de colon, ileus sever cu deshidratare, sau megacolon toxic. Ca și caracter de noutate în tratamentul recidivelor care nu au răspuns la tratamentul utilizat în primul episod se recomandă: Fidaxomicină 200 mg x 2/zi. De asemenea, de luat în considerare poate fi și transplantul de microbiotă fecală, o metodă relativ nouă de a schimba direct microbiota intestinului destinatarului pentru a normaliza compoziția și a obține un beneficiu terapeutic. În concluzie, se impun anumite măsuri de prevenție, controlul politicilor de antibioterapie atât în spital dar și în ambulator, cu reducerea frecvenței și duratei utilizării antibioticelor, în vederea diminuării până la eliminarea acestor infecții asociate îngrijirilor medicale.

## Influenza- o problemă de sănătate publică în sezonul rece

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**Introducere.** Gripa este o infecție virală cu potențial de severitate, caracterizată prin infecțiozitate ridicată, incubare scurtă și care produce epidemii extinse cu consecințe economice importante.

**Obiective.** Furnizarea unei descrieri a epidemiei de gripă în sezonul rece 2018-2019, în zona județului Iași. Aderența sau nu la programul de vaccinare poate preveni epidemia/pandemia de gripă cu costuri reduse.

**Materiale și metode.** S-a urmărit determinarea mortalității și morbidității cazurilor de gripă în Iași, printr-un studiu retrospectiv, realizat în Spitalul Clinic de Boli Infecțioase "Sf. Parascheva" Iași. Au fost incluși în studiu pacienții la care testul rapid a fost pozitiv pentru virusul gripal. Lotul investigat a cuprins 53 de pacienți (30 de sex feminin și 23 de sex masculin), cu o mediană a vârstei de 33 ani. S-a avut în vedere mediul predominant de proveniență al pacientului, răspândirea pe categoriile de vârste a virusului gripal, sexul predominant afectat, simptomatologia pacienților, comorbiditățile asociate, contactul cu cazuri confirmate de gripă înaintea apariției simptomelor, tipul virusului gripal predominant, modalitatea de confirmare a virusului gripal, profilaxia și tratamentul instituit.

**Rezultate.** Tipul de virus gripal circulant este tipul A. Examenul PCR s-a realizat la 7.5% (4 pacienți) în concordanță cu testul rapid. Comorbiditățile des întâlnite la pacienții din lotul de studiu, predominant la cei vârstnici: insuficiență cardiacă cronică 62,2% (33 pacienți), hipertensiune arterială 56.6% (30 pacienți), diabet zaharat tip II 9.5% (5 pacienți), bronhopneumonie obstructivă cronică 3.75 % (2 pacienți), boală renală cronică 3.75% ( 2 pacienți). Complicațiile cel mai frecvent asociate infecției gripale au fost: insuficiența respiratorie 37.75% (20 pacienți), pneumonia interstițială 30.18% (16 pacienți), laringita acută 5.66% (3 pacienți) și pneumotoraxul 1.85%(1 pacient). Studiul a avut o rată a decesului de 11.3 % (6 pacienți), majoritatea vârstnici (5 pacienți) cu comorbidități asociate și 1 caz de vârstă pediatrică (4 ani). Osaltamivir alături de terapia de susținere s-a administrat la toți pacienții.

**Concluzii.** Vaccinarea reprezintă cea mai eficientă metodă de prevenție a gripei în grupele de risc populațional. Datorită ratei scăzute de vaccinare se ajunge la un număr crescut de spitalizări în regim continuu, implicit la costuri foarte mari.

## **Winter conditions in Romania.**

### **The particularities of the emergency medical intervention**

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Romania is not one of the coldest countries of the world, but sometimes strong winds can make the perceived temperatures be as low as -68 degrees. What is particular in these cases is the fact that the roads are frequently blocked when there are blizzards and massive snowfalls, so the population remains stuck especially in remote rural areas, and more particularly in my side of the country, namely, the eastern Romania. There are not highways in this area or snow protection systems for the European roads, so that the interventions for medical emergencies become extremely difficult. We don't refer only to the usual emergencies for which the common telephone number that can be dialled is 112. Some other types of intervention needs can break, such as pregnant women who develop uterine contractions and need to reach the hospital, patients who need to reach dialysis centres and remain blocked, people who use oxygen home therapy systems may suffer because of current disruptions, chronic patients who must go to a medical check-up or to buy drugs may also remain blocked. It is difficult to intervene with Ambulance Service or SMURD ambulances in such road traffic situations. In these cases either Multi-purpose Transport Vehicles are used because they can carry more patients to the hospital from the nearby locations or tracked vehicles from the Inspectorate for Emergency Situations because they also come with paramedics, nurses, midwives or doctors. The intervention of the medical helicopter is decided by the dispatcher precisely in these situations of blocked roads, in which the helicopter would not normally be sent otherwise.

**Homecare services for patients with Haemophilia –  
practices challenges and perspectives**

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Haematology is the branch of medical science concerned with the diseases of blood and blood forming organs. Hematologic disorders are divided in neoplastic and non-neoplastic disorders. The main goal is to show the role of Homecare services in Hematology and its particularities and also the practices, challenges and perspectives from our experiences in treatment of patients with haemophilia. The patient with haemophilia is a complex patient with multiple needs which requires a multidisciplinary approach. The socio-economic impact of non-treatment demonstrates that haemophilia is a rare disease that costs more if it is not treated than if it is treated.

Despite the 2.5 times increase in the budget allocated to the National Hemophilia Program (from 70 million lei in 2016 to 179 million lei in 2018), patients with haemophilia present some difficulties in accessing the treatment and approx. 60% of the budget is spent. Our perspectives are: decrease of the average hospitalization time of haemophilic patients, increase of the number of patients with continuous / intermittent prophylaxis, decrease of time between the occurrence of the haemorrhagic accidents and the first treatment, increase of adherence to treatment. The specialty/field of Hematology has evolved a lot in recent years, giving physicians the opportunity to solve complex cases of pathology.

Homecare services allows an integrated approach of the patients with haemophilia having a net benefit over the patient's quality of life, the family and the health system. For patients with haemophilia, providing care at home can improve quality of life, reduce costs and alleviate burdens on health care systems.

## Expresivitatea variabilă în cazul unei familii cu neurofibromatoză tip 1

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Neurofibromatoza tip 1 (NF 1) este o afecțiune genetică transmisă autozomal dominant (AD), determinată de mutații ale genei *NF1* (localizată pe cromozomul 17q11.2), care codifică neurofibromina, care acționează ca o proteină supresoare de tumori. În 70-80% din cazuri sunt decelate mutații care determină sinteza unei proteine trunchiate. Diagnosticul clinic de NF1 se afirmă în prezența *două sau mai multe* dintre următoarele criterii stabilite la Conferința Internațională de Consens (1987) și, revizuite ulterior: 6 sau mai multe macule café au lait cu diametrul peste 5 mm la indivizi prepubertar sau peste 15 mm postpubertar; două sau mai multe neurofibroame sau orice tip de neurofibrom plexiform; pistrui axilari și inghinali; gliom de nerv optic; doi sau mai mulți noduli Lisch (hamartroame iriene); o leziune osoasă: displazia de sfenoid sau pseudortroză tibială; o rudă de gradul întâi (părinți, frați sau copii) diagnosticată cu NF tip 1).

Scopul lucrării: prezentarea unui caz familial cu neurofibromatoză tip 1. Probanda, M.R. în vârstă de 26 ani este al doilea copil al unui cuplu neconsangvin. Anamneza familială relevă faptul că tatăl, un frate al tatălui și alți patru frați ai pacientei prezintă aceeași simptomatologie clinică. Evaluarea clinică a relevat: nanism disproporționat (talie = - 5,21 DS, greutatea = - 2 DS); macrocefalie (perimetrul cranian pentru vârsta taliei = + 4,16 DS); dismorfie cranio-facială: fante palpebrale antimongoloide, discretă exoftalmie; pete café au lait multiple, diseminate pe trunchi și membre (unele cu diametrul > 0,5 cm); pistrui axilari și inghinali; cifoscolioză toracică dreaptă severă (operată) cu pseudartroză după fuziune (artrodeză) vertebrală; dezvoltarea psiho-motorie aparent normală. Diagnosticul pozitiv de neurofibromatoză tip 1 a fost afirmat pe baza prezinței a 3 criterii clinice: *≥ 6 pete "café au lait"* (> 0,5 cm înainte de pubertate), *pistrui axilari și inghinali și mai multe rude de gradul I afectate*. Testul ADN (MLPA) a fost normal. Evaluarea clinică a tatălui probandei, M.B în vârstă de 59 ani, a relevat prezența unei dismorfii cranio-faciale cu anomalii ale urechii stângi, neurofibroame cutanate multiple, multiple pete café au lait, pistrui axilari și inghinali, zone cu alopecie la nivelul scalpului. Evaluarea clinică a fraților probandei a relevat prezența de pete café au lait și a pistruiilor inghinali și axilari.

Concluzii: remarcăm expresivitatea variabilă a bolii la persoanele afectate din familie, probanda neprezentând neurofibroame cutanate, dar prezentând anomalii scheletice, absente la ceilalți membri afectați din familie. Ținând cont că boala are o transmitere autozomal dominantă, riscul de recurență în cazul persoanelor afectate este de 50%.

## How can Plato be relevant for contemporary medicine?

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**Introduction:** Plato's ideas about medicine and care often appear in his dialogues. The philosopher uses medicine as a metaphor, as an analogy for philosophy, as an example of privileged practice, an allusion to politics or craftsmanship (ἡ τέχνη), sometimes worthy of despise, sometimes respectable. This has led some authors to think that Plato's opinion shifted from despise to praise and then back to a reconciling attitude in what medicine is concerned.

**Method:** We analyzed Plato's Dialogues in order to find out the places where medicine and doctors are mentioned. We did a conceptual analysis and compared what transpires in the Dialogues with some of the current understanding about medicine and doctors.

**Results:** There is a long distance in time between medicine in ancient Greece and medicine as we understand it today. However, there is a significant amount of teachings that can help us cope with current day problems about the doctor-patient relationship. For Plato, it appears that the „patient” is a part of the whole which got dislocated from the metaphysical order which is common for body parts, soul parts and city parts. Care seeks to restore that specific element to its original place and function. Health means more than a cure for the body. It tries to restore or include the person or an entire community into a general order of proper functions and places. Furthermore, true „patient autonomy” might be seen in actions that are truly wanted by the person (βούλομαι) not in actions that seem fit (δοκέω). If we allow ourselves to understand autonomy as freedom conducted towards what is good, real knowledge finds itself in antithesis with spoiling.

**Conclusion:** Reading Plato can give us new insight in how to solve contemporary problems about doctor-patient relationship and about medical choices. It connects with the holistic approach, the form of healing that considers the whole person in the quest for optimal health and wellness body, mind, spirit, and emotions. It might also give us a new understanding about what patient autonomy should be and who has the right to decide true beneficence. A thorough reading of Plato's Dialogues and a good understanding of his concepts is beneficial in proposing solutions for contemporary medical practice.



## **Evaluating oral and dental health management for pediatric patients undergoing cancer treatment**

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**Aim:** The purpose of this paper was to evaluate the common methods of management for pediatric patients undergoing cancer treatment, with emphasis on the periodontal and oral manifestations and complications.

**Background:** Pediatric malignancies are increasingly becoming the most important cause of fatality in children and adolescents, surpassing infectious diseases and accidents. In Eastern Europe and Romania, the prevalence of certain types of childhood cancer is similar, most of the diagnosed cases being leukemias, followed by lymphomas and central nervous system tumors. Due to medical and technological advances, if the diagnosis and treatment are established early, the survival rate is relatively high, about 80% of the children being alive 5 years after the diagnosis. The main directions of treatment are chemotherapy, radiotherapy or bone marrow transplantation. Dental care during cancer treatment should not be neglected, especially since oral and dental complications often occur, either as a manifestation of the disease itself, or as a consequence of the treatment.

**Methods:** This research was based on searching the current literature available, using MeSH terms: *children* and *cancer treatment* and *oral and dental complications* and *oral and dental care*.

**Results:** Common oral and dental complications of cancer treatment are mucositis, candidiasis, gingival bleeding, xerostomia, dysphasia, hemorrhage, dental caries, opportunistic infections etc. These various complications require an interdisciplinary approach, in order to properly address children's need for minimizing pain and discomfort, and also maximizing the prognosis for a successful treatment.

**Conclusions:** Dental practitioners must combine their efforts with the oncology team during the pediatric patient's cancer treatment, to alleviate the complications that may occur before, during or after the antineoplastic therapy. In order to build a proper oral and dental care management for these patients, the practitioner must have a solid base of knowledge regarding the most common oral and dental complications and their effective treatment.

## Strategii terapeutice actuale în managementul bolii carioase

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National Institutes of Health Consensus Conference on the Diagnosis and Management of Dental Caries Throughout Life în 2001 a conchis: caria dentară este o boală infecțioasă comunicabilă care induce distrucția structurii dentare de către bacteriile care formează acizi din biofilmul bacterian în prezența zahărului. Infecția determină pierderea mineralelor dintelui care începe de la suprafața externă a dintelui și poate progresa prin dentină spre pulpă, compromițând în final vitalitatea dintelui. Leziunea carioasă se dezvoltă și progresează atunci când balanța minerală, cumulativă negativă (demineralizarea netă) depășește rata de remineralizare o perioadă de timp îndelungată. Această situație apare atunci când factorii patologici (disfuncții salivare, un control slab al biofilmului, aport frecvent de zaharuri rafinate) care cresc riscul de carie depășesc factorii protectivi (igienă orală bună, un aport scăzut de zaharuri rafinate, o salivă normală ca flux/compoziție în ioni minerali) care scad riscul de carie, înclinând balanța spre progresia cariei. Având în vedere faptul că leziunea carioasă determină distrucția structurii dentare, în managementul clinico-terapeutic al bolii carioase va trebui să identificăm: instrumentele corecte pentru a detecta și monitoriza modificările ce apar în leziunea carioasă, strategiile și/sau produsele corecte care să vindece stadiile inițiale ale procesului patologic cât și mijloace de a angaja pacienții în acest proces astfel încât să fie capabili să îi monitorizeze evoluția. Este important să subliniem că restaurările nu vindecă leziunile, ci că doar le anulează efectele odată ce ele au penetrat în dentină. În august 2017, ghidul clinic de prevenție și management al cariei publicat de FDI a rezumat obiectivele privitoare la carie după cum urmează: obiectivul este de a reduce impactul dezvoltării cariei prin intervenția cât mai curând posibilă, de a manageria o ulterioară distrucție prin carie și de a induce reversibilitatea procesului în favoarea remineralizării. Ideal, managementul cariilor incipiente trebuie să cuprindă cea mai puțin invazivă abordare capabilă de a preveni progresia bolii și de a încuraja pacientul în a-și îmbunătăți și a-și menține propria sănătate orală. Strategia minim invazivă se sprijină pe: (1) o filozofie preventivă asociată unei evaluări individualizate a riscului de carie, unei detecții precoce și pline de acuratețe a leziunilor carioase și eforturilor de a opri în evoluție și apoi a remineraliza leziunile necavitate și (2) adoptarea unei îngrijiri preventive promptă cu scopul de a minimaliza intervențiile operative. Abordarea minim invazivă în managementul cariei reprezintă „cheia de boltă” a unui plan de tratament personalizat, comprehensiv, modern care are ca obiectiv să mențină stare de sănătate prin păstrarea structurii dentare sănătoase și restaurarea acestora doar atunci când este indicat, strategie terapeutică în care remineralizarea leziunilor carioase în stadiile incipiente este o componentă esențială.

## **Alveolar bone healing through the OPG/RANKL system in the context of systemic conditions**

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Among various biomarkers of bone destruction, the investigation of RANKL and OPG regarding biochemical analysis of relevance may deliver reliable information on the state of postextraction socket healing. Rehabilitation of tissue integrity after an injury of varying causes is a complex biological process. At the time of the causing trauma, multiple cellular and extracellular pathways are activated, in a highly regulated and coordinated manner.

Bone is a dynamic hard tissue that is subjected to continuous remodeling, to meet the functional adaptation needs. The remodeling process is characterized by coupling of resorption of the bone matrix by osteoclasts, and its re-formation by osteoblasts. Remodeling of the alveolar bone can occur in physiological situations, such as occlusal forces, tooth eruption, clinical interventions (orthodontic tooth movement) and pathological conditions, such as periodontitis and periapical pathology. Classically, the process of wound healing is divided into four distinct phases: hemostasis, inflammation, proliferation, and tissue remodeling.

Increased RANKL or decreased OPG local expression can cause bone resorption at various sites of the human skeleton, including the alveolar bone. Conversely, decreased RANKL or increased OPG expression could result in enhanced bone formation, leading to osteopetrotic conditions.

Conclusions: With the development of molecular biology, new controversies have emerged about the molecular aspects of bone healing beyond histological studies, particularly in identifying genes responsible for protein synthesis involved in dental post-extraction bone healing. In addition, pathological conditions such as osteoporosis, uncontrolled diabetes and hypertension have been associated with impaired bone metabolism. Thus, a balanced bone remodeling occurs when the levels of OPG and RANKL are similar.

Describing the intricate biomechanisms of bone healing is paramount and may offer indispensable insight into clinical applications that benefit both the clinician and the patient in achieving optimal treatment results.

## **The implications of the optical properties in the aesthetical success of the oral rehabilitations**

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The purpose of an oral aesthetic rehabilitation is to be integrate perfectly into the dento-somato-facial assembly. In recent years, due to the progress of research, the optical properties of dental materials have been improved with the aim of better chromatic harmonization between natural dental structures and restorative materials. Whether for direct or indirect method restorations, the condition for these restorations to be truly aesthetic is that, in addition to their geometrical attributes, they accurately reproduce all the chromatic features of the natural dental units. An oral rehabilitation with a more natural look requires a good understanding of the optical properties. They present a series of characteristics determined by the interaction of the light beam with dental structures. For the final therapeutic success it is important that the parameters represented by: saturation, luminosity, hue, translucency, opalescence, fluorescence to be known by both the dentist and the dental technician.

The clinical stage of appreciation and choice of dental color is an extremely ample and complex procedure, since the tooth is an entity made up of layers of tissue with different optical properties, which generates complex phenomena in interaction with incident light.

The dentist must know the "color language" in order to provide the dental technician with all the necessary details regarding the aesthetics of the future restoration, a prerequisite for the success of oral rehabilitation. Obtaining ideal final aesthetic results it is possible only if the following goals are met: the dentist has learned well the art and science of the color treatment plan; the dentist has correctly communicated to the dental laboratory the treatment schedule and color selection; the dental technician correctly interpreted the information received and successfully combined the materials within the restoration algorithm to achieve a more natural look. A good knowledge of the theoretical notions by the dentist, supported by the development of practical skills of color determination, is the key to the success of aesthetic dental treatments.

## **Involvement of laboratory specialists in reducing pre-analytical errors**

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**Introduction:** The quality and integrity of the coagulation sample important for the haemostasis tests is a cornerstone in warranting a correct diagnosis and establishing appropriate anticoagulant therapy, that should be free of hemorrhagic risk for the patient. Pre pre-analytical phase is the greatest challenge for clinical laboratory specialists, being considered the most vulnerable phase of the entire testing process. **Objectives:** We aim to highlight the need for continuous education on best practices for the sampling and processing of the biological product in order to reduce non-conforming specimens.

**Material and Methods.** This study was conducted on a period of 4 months in the Hematology Laboratory of the "Sf. Spiridon" Hospital in Iasi, during which all non-conforming specimens were identified and recorded, being analysed prospectively for the implementation of the future educational training activities.

**Results.** Subsequent to remedial measures, through the nurses training activities from the clinical departments regarding sources of error, a decrease in the incidence of non-compliant samples has been observed. Despite of a significant increase in the incidence of hemolyzed plasma specimens: from 10.81% to 33.80% and insufficiently collected volume: from 7.38% to 14.89%, there was a significant decrease in coagulated specimens from 81.80% to 51.30%.

These results were used as a database for the organization of informal courses for nurses, mainly for those responsible for the sampling of the biological product, starting in 2016 and continuing with 2017 and 2018; moreover, it allowed the training and briefing of the clinicians and laboratory specialists upon the potential errors from the pre pre-analytical phase, by organizing post-graduate courses at the “Grigore T. Popa” University of Medicine and Pharmacy of Iași, starting with 2018, 2019 and going to be continued.

**Conclusions:** Our findings indicate that sustained educational activities in the field of health care, as well as informing clinicians about the negative impact of the error sources on coagulation tests can have a positive impact on the quality of laboratory samples, by significantly reducing errors for pre pre-analytics, errors that could have critical consequences, endangering patient's life.

## **Abordarea fracturilor corono-radiculare a dinților permanenți la copii – prezentare de caz**

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**Introducere:** Fracturile corono-radiculare de la nivelul dinților permanenți la copii sunt entități rare, având un tratament dificil și un prognostic rezervat. Managementul terapeutic în astfel de cazuri necesită un diagnostic precis și o abordare multidisciplinară. Aceasta prezentare de caz descrie restaurarea unui incisiv cu fractura corono-radiculară complicată, extinsă subgingival păstrând rădăcina remanentă.

**Material și metodă:** Prezentăm cazul unui pacient în vârstă de 12 ani, de sex masculin, cu o fractură corono-radiculară complicată la nivelul lui 2.1, extinsă subgingival. În prima etapă s-a realizat extracția fragmentului coronar, pulpectomia și obturația radiculară la nivelul dintelui în cauză. A doua etapă a cuprins gingivoplastia și extruzia ortodontică a fragmentului radicular, iar în ultima etapă s-a realizat restaurarea protetică printr-un dispozitiv corono-radicular metalic și coroana de înveliș total fizionomică.

**Rezultate:** Tratamentul a avut rezultate foarte bune, restabilind funcțiile sistemului stomatognat și anume cea estetică, masticatorie și fonetică. La 2 ani după tratament nu existau semne de mobilitate dentară sau leziuni patologice la nivel radicular.

**Concluzii:** Extrudarea ortodontică rapidă folosită în tratamentul fracturilor corono-radiculare complicate care implică incisivii permanenți la copii este o opțiune terapeutică de luat în considerare și are multe avantaje clinice și financiare față de alte tratamente.

## **Evaluation of antioxidant activity of some pyridazinic derivatives**

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Pyridazine derivatives are important compounds due to their biological activities: antihypertensive, vasorelaxant, anticonvulsant and recently antioxidant.

A large number of 1,2,4-triazole-containing ring compounds have been incorporated into a wide variety of drug candidates including antiinflammatory, CNS stimulants, antitubercular, antitumor, antimicrobial and antimycotic activities.

These data prompted us to synthesize pyridazinic derivatives bearing a 1,2,4-thiadiazole ring.

In the present work the synthesis and antioxidant activity of certain triazolo-pyridazinic is described.

A rapid and efficient synthesis of the triazolo-pyridazinic compounds has been developed. In this view we have refluxed acetic solutions of semicarbazides or thiosemicarbazides derived from hydrazino-pyridazines.

All synthesized structures were confirmed by melting points, elemental analysis and infrared spectra.

The capacity of our derivatives to scavenge DPPH or ABTS radicals was determined spectrophotometrically and the IC<sub>50</sub> values were determined for each compound.

From results of these determinations, we found that the investigated compounds have a moderate antioxidant activity compared to the ascorbic acid.



## Evaluarea activității biologice a unor extracte selective cu implicații în prevenția infecțiilor urinare

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**Introducere.** Tulpina de *Escherichia coli* uropatogenă (UPEC) reprezintă cea mai frecventă cauză a infecțiilor recurente ale tractului urinar. În aceste cazuri tratamentul obișnuit este constituit din antibiotice de tipul cefalosporinelor și fluorochinolonele. Cu toate acestea, utilizarea irațională a antibioticelor prin automedicație a condus la apariția unor tulpini bacteriene rezistente.

**Scopul lucrării.** Am urmărit evidențierea principiilor active dintr-un extract liofilizat și respectiv, din suc de presare al fructelor de *Aronia melanocarpa*. Ambele extracte au fost apoi investigate prin prisma acțiunii antioxidante și antimicrobiene. Ulterior, s-a observat rata de recurență a UPEC la pacienții care au consumat zilnic suc de aronia.

**Material și metoda.** Profilul general al metaboliților secundari și concentrația acestora au fost stabilite prin cromatografie de lichide de înaltă performanță ultrarapidă UHPLC, iar capacitatea antioxidantă a fost stabilită prin trei metode (testul DPPH, capacitatea de chelatare a ionilor ferosi și inhibarea 15-LOX). Eficiența antimicrobiană a presupus calculul concentrației minime inhibitorie (CMI) și al puterii de eradicare a biofilmului (CEBM) a extractelor față de tulpina standard (*E. coli* ATCC) și câteva tulpini izolate clinic (*E. coli* 2041, *E. coli* 1851 și *E. coli* 1992).

**Rezultate.** Rezultatele au arătat că extractele conțin derivați cianidolici în concentrație mare, spectrul fiind asemănător, iar potențialul antioxidant a variat în funcție de test. Ambele extracte au o bună activitate antibacteriană față de UPEC.

**Concluzii.** Studiul a confirmat posibilitatea asocierii la medicația de bază a extractelor de *Aronia melanocarpa* la pacienții cu UPEC pentru prevenția recurențelor și scăderii riscului de reinfectare cu patogeni.

## **Extractele din plante – mediatori în sinteza verde a nanoparticulelor de argint**

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Obținerea și utilizarea nanoparticulelor, în special a celor de argint (AgNPs), este un domeniu în curs de dezvoltare, datorită proprietăților, biocompatibilității precum și a aplicațiilor pe care le prezintă. Sinteza AgNPs se poate realiza prin metode fizice și chimice, dar care sunt costisitoare și implică utilizarea unor substanțe toxice. Plantele sunt ușor accesibile și sunt de preferat față de microorganisme datorită biosecurității, oferind un raport cost-eficiență bun. Scopul studiului de față a fost de a sintetiza și caracteriza AgNPs, utilizând diferite extracțe din plante. Inițial s-au investigat parametrii care ar putea influența sinteza, precum: concentrația sării de argint, pH-ul, raportul extract:sare de argint, temperatură, timp de agitare etc. Obținerea de AgNPs a fost demonstrată prin aplicarea unor metode fizico-chimice, dintre care amintim: spectroscopia UV-Vis, FTIR, EDX, TEM și DLS. De asemenea, s-au testat activitățile antioxidantă și antimicrobiană a AgNPs obținute, în vederea determinării unor posibile aplicații biologice ale acestora. Rezultatele obținute au demonstrat că sinteza AgNPs este influențată substanțial de condițiile de reacție, pentru fiecare caz stabilindu-se parametrii optimi. Monitorizarea formării AgNPs s-a realizat, inițial, prin urmărirea modificării culorii amestecului de reacție (extract - sare de argint) de la galben la brun-închis, modificare datorată efectului de rezonanță plasmonică de suprafață. Acest lucru a fost confirmat și prin spectrele UV-Vis care au prezentat banda plasmonică de suprafață, în domeniul 400-500 nm, caracteristică AgNPs. Prin analiza FTIR s-au pus în evidență grupările funcționale corespunzătoare compușilor responsabili de sinteza și stabilizarea AgNPs. Prezența biomoleculilor ce încapsulează și stabilizează AgNPs a fost demonstrată prin TEM, iar prezența argintului a fost confirmată prin EDX. Valoarea medie a dimensiunii nanoparticulelor, determinată prin DLS a fost mai mică de 100 nm, iar valorile negative ale potențialului Zeta au demonstrat stabilitatea acestora. În urma testărilor biologice realizate, AgNPs sintetizate s-au dovedit a avea activități antimicrobiană și antioxidantă îmbunătățite, comparativ cu cele ale extractelor inițiale.

În concluzie, studiul nostru a demonstrat că plantele reprezintă o sursă de biomolecule ce pot participa la sinteza rapidă, simplă și eco-friendly a AgNPs cu posibile aplicații biologice viitoare.

## Green synthesis of silver nanoparticles using conifer bark extracts and their potential applications

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This study aimed to develop an innovative, eco-friendly, cost-effective and rapid method for the synthesis of silver nanoparticles using a silver salt and aqueous extracts of three conifer barks (*Pinus nigra*, *Pinus sylvestris* and *Abies alba*). A qualitative analysis of aqueous extracts was performed by HPLC-DAD-ESI-Q-TOF-MS/MS, proanthocyanidins being the major constituents. The aqueous extracts had total phenolic contents of 17.99, 10.78 and 4.52 mg/mL, respectively. The synthesis of silver nanoparticles was monitored and confirmed by UV-VIS spectroscopy which revealed a peak between 420 and 430 nm corresponding to the surface plasmon resonance of silver nanoparticles. For silver nanoparticles synthesized with *Pinus nigra* bark aqueous extract, dynamic light scattering technique revealed uniform and stable silver nanoparticles with size ranging between 50 and 60 nm and a zeta potential of -16 mV. The silver nanoparticles synthesized using the aqueous extracts of *Pinus sylvestris* and *Abies alba* barks showed higher size values (> 100 nm) and low stability (zeta potential between -10 and -5 mV). Therefore, further studies were performed only for *Pinus nigra* extract bio-synthesized silver nanoparticles. Electron transmission microscopy showed a uniformly distributed spherical shape, while EDX analysis confirmed a crystalline elemental silver composition. Moreover, the potential genotoxicity and antimicrobial capacity of *Pinus nigra* bark aqueous extract and silver nanoparticles dispersion were screened using *Allium cepa* root apexes and disc diffusion assays, respectively. To conclude, we present herein a facile route for the synthesis of silver nanoparticles using conifer bark aqueous extracts which could be further explored for therapeutic valorization.

## **Bioinspired multi-sensitive scaffolds for soft tissue engineering and regenerative medicine**

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To restore function or regenerate tissue, a scaffold will act as a temporary matrix for cell proliferation and extracellular matrix deposition, with subsequent ingrowth until the tissues are totally restored or regenerated. Scaffolds have been used for tissue engineering such as bone, cartilage, ligament, skin, blood vessels, neural tissues, and for the controlled delivery of drugs, proteins, and DNA. Repairing of soft or hard tissue is likely to become of clinical interest when three dimensional tissue reconstructive procedures and the appropriate supporting biomaterials are correctly assembled. Biodegradable polymeric have received a considerable attention as promising components in scaffolds for soft tissue engineering, due to their ability to form structures which mimic the natural extracellular matrix, assuring the cell proliferation and survival while allowing diffusion of nutrients and other water-soluble metabolites. A variety of synthetic or natural polymers have been tested for tissue engineering and drug delivery applications, as binary or ternary systems, stabilized by ionic or covalent crosslinking.

The paper presents the works on biodegradable polymers scaffolding for soft tissue engineering, and it is focused on correlations between scaffold's chemistry and morphology with mechanical properties, biodegradation, bioadhesion, biocompatibility. Various mixtures between natural polymers and natural-synthetic polymers have been tested and crosslinking methods have been compared in the aim to control the interaction with cells and the behaviour in the human body. In designing scaffolds for soft tissue engineering or other biomedical applications, it is also necessary to match the mechanical properties of the target tissue and this make necessary to understand and control the physical and chemical factors involved in polymers organization and interactions. Studies have investigated methods for enhancing the mechanical strength of the scaffolds using different gelation and cross-linking methods. The polymer characteristics are also discussed in terms of their biological performances. Due to their intrinsic characteristics and ability to tune a biological mobile surface, the biodegradable polymers became an important issue in the scaffolding of biomaterials for soft tissue engineering and provide a combination of biological interactions required for tissue functions, stimulatory cellular collagen production, and tissue organization and healing. However, the engineering of tissues and organs remains an exciting and dynamic field that requires a carefully and multidisciplinary approach.

## Development and *in vitro* evaluation of nanosystems as drug delivery platform for breast cancer therapy

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Breast cancer is the most frequent cancer in women worldwide. Current promising therapies including surgery, chemotherapy and radiotherapy are still limited due to the: i) lack of selectivity, ii) multidrug resistance, and iii) severe toxic side effects. In this context, extensive research has been attracted in the development of multifunctional nanosystems for breast cancer therapy. Recent studies revealed that overexpression of biotin receptors on the surface of tumoral cells, especially breast cancer cells can modulate the uptaken of biotinylated systems through a receptor-mediated endocytosis mechanism. This paper reviews our group results concerning design and evaluation of two drug delivery nanosystems for breast cancer therapy: 1) biotin-functionalized magnetic nanocapsules comprised of magnetite, N-palmitoyl chitosan, Doxorubicin and biotin (codified BMN-DOX), and 2) Docetaxel loaded self-assembled nanoparticles based on biotinylated N-palmitoyl chitosan (codified DCX-BPCs). BMN-DOX have been prepared through *a two-step procedure*. In a first step, Doxorubicin-loaded magnetic nanocapsules based on N-palmitoyl chitosan were prepared using a double emulsion method. Magnetic nanocapsules exhibited good ability to incorporate a chemotherapeutic agent - encapsulation efficiency (EE of 73%), suitable magnetic saturation (13.08 emu/g) and superparamagnetic behavior. In a second step, the nanocapsules were functionalized by immobilization of biotin (a targeting ligand of the breast tumoral cells) on their surface, via carbodiimide chemistry; biotinylated magnetic nanocapsules exhibited good redispersibility in simulated biological fluids and cytotoxic effects on MCF-7 cell line human breast adenocarcinoma. BMN-DOX exhibited anti-proliferative effects on MCF-7 cells, more pronounced than free-DOX, especially at higher concentrations. DCX-BPCs were prepared by combining the dialysis method with ultrasonication. Nanoparticles obtained were nearly spherical in shape, with narrow size distribution, in the range of 300–400 nm and positive charged; they exhibited an encapsulation efficiency of 79% and a pH-dependent release profile of drug, susceptibility to biodegradation and hemocompatibility. The obtained nanosystems (BMN-DOX and respectively DCX-BPCs) proved suitable characteristics that sustain future experiments aiming to assess the effectiveness of these novel devices as drug delivery system for breast cancer therapy.

## **Magnetic scaffolds based on biopolymers and calcium phosphates with insertion of SPIONs for bone treatment and regeneration**

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Bone regeneration is a real challenge in orthopedic and craniofacial surgery, considering the consequences of the traumatic and pathological bone disorders. Bone tissue engineering is an intensely studied area because it offer promising solutions for treating bone disorders, especially for the reconstruction of serious bone defects caused by tumors. Based on the structure of biological tissues, tissue engineering has three components: a scaffold or support, cells and signaling molecules. The scaffold is the main component of tissue engineering, being initially a temporary support for adhesion and cell growth, and then having a defining role for extracellular matrix synthesis. Finally it provides the formation of neo-tissue. Biomaterials have a critical role acting as artificial extracellular matrices or as three-dimensional media for cells used to repair or regenerate damaged tissue. The use of biomimetic methods implies an artificial designed scaffold that mimics certain advantageous features of the natural extracellular matrix and facilitate cell seeding, adhesion, proliferation, differentiation and tissue neogenesis. Because there were no studies concerning the development of magnetic scaffolds based on the combination of different biopolymers, calcium phosphates and magnetic nanoparticles our research group studied the synthesis, characterization and biocompatibility evaluation of new magnetic scaffolds based on biopolymers and calcium phosphates which combines the outstanding properties of four biopolymers with of the special abilities of calcium phosphates and the versatility of magnetic material in order to fully exploit their potential for further bone tissue engineering applications. Recently, our research group focused on testing the suitability of these scaffolds in combination therapy (radiotherapy followed by chemotherapy) of malignant bone tumors was investigated. First, it was studied the influence of X-rays on scaffolds characteristics and second it was evaluated and demonstrated their potential as drug delivery systems for chemotherapeutical drugs.

## Synthesis of a new amidic compounds derived from 6-nitro-benzimidazole and a study on their biological action

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The benzimidazolic nucleus, consisting of a benzene ring condensed with an imidazolic one, shows important biological activities: antimicrobial, antiinflammatory, antifungal, anti-HIV, cytostatic. The actual concern for the preparation of new substances with drug action involves – among others – the synthesis of some amidic compounds, derivatives of the 6-nitro-benzimidazolyl-2-mercapto-acetic acid. The introduction of functional groups into the structure of benzimidazole leads to an intensification of the biological activity or even to an induction of a biological activity. This new derivatives were synthesised in order to get new cytostatic substances.

The synthesis presented in this paper proceeds in several stages and the structure of the compounds obtained in each stage was confirmed by elemental and spectral analysis (FT-IR, <sup>1</sup>H-NMR). In the first stage, the ethyl ester of 6-nitrobenzimidazolyl-2-mercaptoacetic acid was obtained by condensation of 6-nitro-2-mercapto-benzimidazole with ethyl ester of monochloroacetic acid, in a solution containing sodium ethoxide. In the second stage, the ester was condensed with different amines (monoethanolamine, diethanolamine, isopropylamine, alkyl amine), obtaining the corresponding amide series, in a solution of dioxane. The azotyperitic derivatives were obtained by the grafting of the di-(β-chloroethyl)-amine group on molecules of two of the amidic compounds, in the third stage. This reaction was done in chloroform solution, by refluxing. The final product was precipitated in acetone. The IR and <sup>1</sup>H-NMR spectra were registered which confirmed the structure of the final compounds. The melting points of the obtained compounds were determined with a Mel-Temp melting point module, provided with a digital thermometer and they are stable and fixed.

The synthesized compounds were investigated from point of view of mitodepressive action, they having an inhibition effect more than 50% which recommend it for antitumor screening.

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## **Correlations between oxidative stress and the effect of physical activity**

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Oxidative stress (OS) is characterized by an imbalance between the production or inactivation of reactive oxygen species, and imbalance between oxidants and antioxidants in favour of oxidants with a destructive and pathogenic effect. Free radicals are substances that are derived from incomplete oxidized compounds having in their structure oxygen groups capable of initiating aggressive oxidation reactions on the cells. Excessive amounts of reactive species can be harmful because they can produce lipid peroxidation, proteins and ADN oxidation. In order to reduce these harmful effects, the organism requires an antioxidant defence. Cardiovascular pathology is linked to oxidative stress, inflammation and endothelial dysfunction. The advantages of exercise are widely known, but there is a lack of information about correct mode, type, length, frequency of exercise necessary to gain such benefits. The quality of low volume exercise performed with high intensity has become more and more noteworthy with facts showing comparable efficiency of high intensity interval workout and traditional training based on resistance in metabolic control of skeletal muscle and cardiovascular system activity. Besides promotions of physical exercise, an antioxidant-rich diet with healthy eating habits can prevent oxidative stress. Physical activity is recognized as an important component of healthy lifestyle but when are practiced strenuously it causes OS and cell damage. Moderate exercise is recommended to improve the physiological and functional capabilities because it increases the expression of antioxidant enzymes. Mechanistic analysis of free radicals may be useful for physiotherapists and health professionals, in particular when comparing different exercise doses, trying to outline appropriate recommendation for physical exercise in guidelines for health.

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## Production and separation of 7-aminocephalosporanic acid

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The industrial production of  $\beta$ -lactam antibiotics by fermentation is one of the outstanding examples of biotechnology. Cephalosporins represent a large group of  $\beta$ -lactam antibiotics that are closely related to the penicillins. They are used for the treatment of infection diseases caused by gram-positive and gram-negative bacteria. They now comprise a group of antibiotics having a wide range of activity and low toxicity. Since their discovery in the 1950s, cephalosporins have become one of the largest classes of antibiotics. The class is divided into generations or subclasses, which are grouped by chemical properties and subsequent generalized microbiologic spectra. There are now more than 50 marketed cephalosporins. 7-Aminocephalosporanic acid is an important intermediate in the production of semisynthetic cephalosporin antibiotics. The primary method for industrial production of 7-ACA is chemical deacylation of cephalosporin C, but this method has many environmental and safety disadvantages.

In recent years, enzymatic conversion of CPC to 7-ACA was developed, which reduces the process costs and has a positive environmental impact, by two-step cleavage with D-amino acid oxidase and glutarylacylase or one-step hydrolysis of CPC with a CPC acylase.

The separation of 7-ACA from an enzymatically produced reaction mixture was performed by numerous methods that have important materials and energy costs. Therefore, new techniques of separation were studied, namely reactive extraction and transport through bulk liquid membranes. The results published so far indicate that using Aliquat 336 as an extractant or carrier agent dissolved in different solvents may present a promising method for efficiently separate 7-ACA from enzymatic media.

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