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## Scientific Program

Book of Abstracts

# ORAL PRESENTATIONS: INTERNAL MEDICINE SESSION

**Diagnosis of malignant disease: sometimes, it is too late.**

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**ABSTRACT:**

**Introduction**: The thyroid neoplasm is the most common malignancy of the endocrine system.

**Case presentation:** A 77-year-old male, with a history of type-2 diabetes mellitus, ischemic cardiomyopathy, degenerative aortic valvular disease, stroke, presented for orthopnoea and dyspnoea at rest during the last 6 hours. The clinical examination detected enlarged lymph nodes in the left supraclavicular fossa and axilla, crackles on both lungs, atrial fibrillation. The blood tests revealed leukocytosis, hyperglycemia, lactic acidosis. The CT scan showed a large nodular left thyroid lobe, with multiple cervical adenopathies and partial thrombosis of the left jugular vein, important left pleurisy and atelectasis. Echocardiography revealed pericardial effusion, of 1 cm. Pericardial puncture with histopathological examination revealed numerous atypical cells, suggestive of a stage IV thyroid neoplasm. The surgical evaluation concluded that the patient has a stage IV (T2, N2, M1) thyroid tumor, without surgical indication. He was discharged from the hospital, with the recommendation of a fine needle aspiration biopsy in a specialized center. Three weeks later, the patient presented with the same symptoms, but more severe. Because of hemodynamic instability, he was intubated and mechanically ventilated. Multiple organ failure (metabolic, renal, hepatic) appeared, with cardiac arrest and exitus.

**Conclusions:** The diagnosis of thyroid neoplasm has been done in a late stage. The cardiovascular comorbidities led to a rapidly unfavourable evolution, which did not allow the histopathological confirmation. However, identification of malignant cells in the cytological examination of pericardial fluid, associated with suggestive imaging of thyroid neoplasm, suggested the probable diagnosis of thyroid malignancy.

**REFERENCES:**

1) Jameson J.L. Harrison's Endocrinology, Second Edition. McGraw Hill Medical, United States, 2010; 91-99

2) Catford SR et al. Cardiac metastasis from thyroid carcinoma. Thyroid, 2011; 21(8): 855-66

3) Jatin P. Shah. Thyroid Carcinoma: Epidemiology, Histology, and Diagnosis. Clinical Advances in Hematology&Oncology, 2015; 13: 3-6

4) Danielle D. Feng, Waijao Cai, Xigun Chen. The associations between Parkinson's disease and cancer: the plot thickens. Translational Neurodegeneration, 2015; 4:20

5) Vassilopoulou-Sellin R., Sneige N. Pleural effusion in patients with differentiated papillary thryoid cancer. South Med J, 1994; 87(11): 1111-6

**Acrochordons: pathogenesis and associated diseases**

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**ABSTACT:**

**The aim of the review:** Acrochordons, dubbed skin tags, are an outgrowth of apparently normal skin. There's an incidence of about 50% in general population. Skin tags have a high prevalence in obese and diabetic patients, metabolic syndrome and in pregnant women. Literature has few information

regarding the mechanisms connecting acrochordons and these type of pathologies. The purpose of this review is to present recent findings regarding its pathogenesis, offering a better understanding of the treatment.

**Materials and methods:** A Scopus and PubMed searches in October 2017 using key words „acrochordon" and „skin tags" limited to the period 2015-2017, using the English language, were performed and resulted 12 articles. Results: 8/12 articles relate acrochordons to obesity, hyperinsulinemia and insulin-like growth factors, familial history, metabolic syndrome. Insulin induces the proliferation of keratinocytes and fibroblasts. Skin manifestations represent an early method to detect insulin resistance. Another article showed the importance of hormones in skin tags, estrogen and androgen receptors being significantly positive in these patients. Skin tags were also found in association with atherogenic lipid profile, acromegaly, Chron's disease, Birt-Hogg-Dube syndrome, an increase in mast cell numbers and TNF-α, making skin traumas a cause for skin tags and they are a risk for cardiovascular problems. Interestingly, recent studies have not focused on the relationship between skin tags and HPV infection.

**Conclusions:** Analyzing the articles we reviewed, we can suggest that acrochordons are not a pathology per se, but they are connected to other diseases that have a bigger impact on the patient's life.

**REFERENCES:**

1) Vinod Wali, Vishal V. Wali,.ASSESSMENT OF VARIOUS BIOCHEMICAL PARAMETERS AND BMI IN PATIENTS WITH SKIN TAGS.Journal of Clinical and Diagnostic Research [serial online]2016 Jan[cited:2017 Jun 8] 01 BC09 - BC11

2) Kurtipek GS1, Duran C2, Kutlu O3, Ataseven A4, Akyürek FT5, Kurku H6, Elmas H7, The frequency of metabolic syndrome in patients with acrochordons,Bangladesh Journal of Medical Science Vol. 16 No. 01 January'17

3) Association between multiple skin tags and metabolic syndrome: A multicentre cross-sectional study in primary care, www.sciencedirect.com

4) Skin Manifestations of Insulin Resistance: From a Biochemical Stance to a Clinical Diagnosis and Management, Gloria Gonza´lez-Saldivar. Rene´ Rodrı´guez-Gutie´rrez. Jorge Ocampo-Candiani, Jose´ Gerardo Gonza´lez-Gonza´lez, Minerva Go´mez-Flores, Received: October 18, 2016/Published online: December 5, 2016 The Author(s) 2016. This article is published with open access at Springerlink.com

5) Immunohistochemical study of estrogen and androgen receptors in skin tags, Arwa M.Hassan, Laila M. Mohammad, Ahmad M. Nassar, Marwa M. Abaza;

**The influence of the emotional state on the eyes.**

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**ABSTRACT:**

**Introduction:** Dry eye is multifactorial disease that affects the tears and the surface of the eyes. DES symptoms have severe complications like corneal epithelial defects, recurrent conjunctivitis, corneal ulceration, corneal scarification, perforation and loss of vision. Studies show that risk factors of DES are hormonal changes, eye surgery, drugs, internal contaminants, low humidity, high temperature and contact lens.

**Purpose:** Patients with DES have more symptoms of anxiety, depression and stress than those without the syndrome.

**Design- methods:** For this study we had two groups of patients- 50 patients with DES whose average age was 31.5 years (IQR 27.8-34) and 50 patients as a control group whose average age was 33.5 years (IQR 26.8-38). DES symptoms were determined with Schirmer's and TBUT tests. Using three questionnaires such as PHQ-9, GAD-7 and PSQI-7, we diagnosed depression, anxiety and sleeping disorder in patients. To process all the data we used IBM SPSS Statistics 22, Microsoft Excel.

**Results:** Case group and control group had statistically significant differences in DES (OR 13.1, 95% CI 4.8-35.3, P<0.001), OSDI (no disability vs. any disability, OR 17.5, 95% CI 5.9052.2, P<0.001), Schirmer'

s (10(IQR 6-12) vs. 18(IQR 12-22), P<0.001) and TBUT test( 7(IQR 5-9) vs. 12.5 (IQR 8.0-16.8), P<0.001) results. Comparing the PHQ-9 test difference, the results showed that in 100% of patients with DES have depression. GAD-7 test OR 17.6, 95% CI 7.6-41.0, P<0.001) and PSQI test(OR 34.3, 95% CI 15.6-75.3, P<0.001) The highest statistically significant difference (p≤0.001) was found in all parameters.

**Conclusions:** People with depression, anxiety and stress often experience DES. Very important is ophthalmic screening, which can prevent diseases such as dry eye in patients diagnosed with depression.

**Chlorine gas induced lung injury and novel therapeutics in animal models**

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**ABSTRACT:**

**Introduction**: Chlorine gas (Cl2) inhalation is a common type of inhalation induced lung injury. Cl2 exposures are either accidental (transportation, occupational or domestic accidents) or by deliberate use during warfare. The severity of the lung injury inflicted upon exposure is a function of the concentration of Cl2 in the epicenter of the accident and of the distance of the subjects from the epicenter. The sequelae of events after inhalation is depletion of antioxidant enzymes in the airway surface lining fluid, oxidative injury of the airway and alveolar epithelium, disruption of the alveolar-capillary barrier and build up of fluid in the alveoli resulting in pulmonary edema. Therefore the morbidity and mortality involved in such an injury is significant and thus effective treatments are sought.

**Purpose:** The purpose of this review is to discuss the current knowledge regarding novel therapeutic approaches against Cl2 induced lung injury tested in preclinical models.

**Design-Methods:** A literature search was conducted in PubMed in Feb 15th2018. Keywords used were: chlorine AND (lung OR lung injury OR ALI OR ARDS). The search yielded 522 papers. Afterwards the following filters were included in the search: Language-English; Species-Other Animals; Publication Dates-10 years. This search yielded 84 papers which were screened according to their title and abstract and 5 papers were finally used.

**Results:** Animal models that mimic the human pathophysiology of Cl2-induced lung injury have been developed in the past 10 years using mostly mice, rats and rabbits. These models involve the exposure to Cl2 under controlled conditions regarding concentration and duration in special gas chambers. The acute effects of Cl2 inhalation include dyspnea, airway hyperreactivity, inflammation, hypoxemia and pulmonary edema. Chronic effects include impaired epithelial repair, airway fibrosis and deteriorated lung function. The therapeutics that have been used aim either at reducing the significant oxidative stress that builds up after exposure or to the acceleration of the resolution of the pulmonary edema (cAMP elevating agents). Regarding the first approach, use of antioxidants like dimethylthiourea, AEOL 10150, N-acetylcysteine plus ascorbic acid and ascorbate plus deferoxamine has that they greatly reduced mortality and lung injury indexes. A promising approach is the administration of nitrite that has been shown to be effective in mice, rats and rabbits through intramuscular administration rendering a suitable candidate for clinical trials in humans. cAMP elevating agents such a arformoterol and rolipram also showed a positive effect in diminishing the extent of lung injury in mice.

**Conclusions:** Cl2 induced lung injury is a clinical entity with severe morbidity and mortality. Promising treatments were found effective in preclinical models and intramuscular nitrite administration seems to be the most promising for use in humans.

**REFERENCES:**

1) Summerhill EM, Hoyle GW, Jordt SE, Jugg BJ, Martin JG, Matalon S, Patterson SE, Prezant DJ, Sciuto AM, Svendsen ER, White CW, Veress LA; ATS Terrorism and Inhalational Disasters Section of the Environmental, Occupational, and Population Health Assembly. An Official American Thoracic Society Workshop Report: Chemical Inhalational Disasters. Biology of Lung Injury, Development of Novel Therapeutics, and Medical Preparedness. Ann Am Thorac Soc. 2017 Jun;14(6):1060-1072.

2) Honavar J, Doran S, Ricart K, Matalon S, Patel RP. Nitrite therapy prevents chlorine gas toxicity in rabbits. Toxicol Lett. 2017 Apr 5;271:20-25.

3) Honavar J, Doran S, Oh JY, Steele C, Matalon S, Patel RP. Nitrite therapy improves survival postexposure to chlorine gas. Am J Physiol Lung Cell Mol Physiol. 2014 Dec 1;307(11):L888-94.
4) Chang W, Chen J, Schlueter CF, Rando RJ, Pathak YV, Hoyle GW. Inhibition of chlorine-induced lung injury by the type 4 phosphodiesterase inhibitor rolipram. Toxicol Appl Pharmacol. 2012 Sep 1;263(2):251-8.
5) Zarogiannis SG, Jurkuvenaite A, Fernandez S, Doran SF, Yadav AK, Squadrito GL, Postlethwait EM, Bowen L, Matalon S. Ascorbate and deferoxamine administration after chlorine exposure decrease mortality and lung injury in mice. Am J Respir Cell Mol Biol. 2011 Aug;45(2):386-92.

**Emergence, prevalence and mechanisms of fluoroquinolone resistance in Neisseria Gonorrhoeae: A literature review**

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**ABSTRACT:**
**Introduction:** Fluoroquinolones are broad-spectrum bactericides that were once considered the most effective antibiotic agents in combatting gonorrhea. Quinolone - resistant strains of Neisseria Gohorrhoeae initially emerged in Southeast Asia during the 80s, and resistance quickly spread around the globe over the course of the following decades. Nowadays, the alarming prevalence of quinolone – resistant gonorrhea has rendered the drugs nearly obsolete. An examination of the appearance, spread and mechanisms of fluoroquinolone resistance in Neisseria Gonorrhoeae through the assessment of available literature sources is critical in understanding the process of bacterial resilience and offers insight into the possible evolution of gonorrhea into an untreatable disease.
**Purpose:** To explore the evolution, examine the epidemiology, identify the mechanisms and analyze the underlying effects of fluoroquinolone resistance in Gonococci.
**Design – Methods:** This is a narrative review of available literature resources, which will be combining both qualitative and quantitative elements. Databases include PubMed (MEDLINE), Ovid, Google Scholar, Web-Of-Science, JSTOR. Other sources include HCDCP (Hellenic Center for Disease Control & Prevention) and library findings. Data Sources include published and grey literature, as well as additional epidemiological finds. Results A broad spectrum of published articles was analysed. All reports on quinolone usage and cases of resistant Neisseria Gonorrhoeae strains were included in the initial planning, classified in a chronological order and selected by exclusion in accordance with the PICOS criteria. Explicit clinical findings were preferred over general reports, although a few broad articles were included to provide a well-rounded view of treatment history and antimicrobial mechanisms. Owing to the diversity of studies and reviews, a substantial amount of data was not suited for inclusion in the current meta-analysis.
**Conclusions/Implications:** The steep increase in the number of documented cases of quinolone-resistant strains of Neisseria Gonorrhoeae led to the inclusion of fluoroquinolones from the CDC's recommended treatments for gonorrhea in 2007. Function-wise, fluoroquinolones directly interfere with DNA synthesis by inhibiting DNA gyrase and topoisomerase IV. GyrA and ParC, structurally homologous subunits of these enzymes, are the main targets of mutations that yield quinolone resistance. Moreover, changes in the permeability of the bacterial cytoplasmic membrane, owing to the increase of efflux pumps, prevent the drug from reaching its target. The thorough examination of these procedures can bolster the development of precise therapeutic approaches and jumpstart new antibiotics against gonococcus, whereas the epidemiological study of QRNG prevalence is vital for public health. Unfortunately, recent findings and warnings issued by the WHO signal that Neisseria Gonorrhoeae might be involving into a superbug.

**REFERENCES:**

1) Hooper DC. Emerging mechanisms of fluoroquinolone resistance. Emerging infectious diseases. 2001;7(2):337-41.
2) Stathi M, Flemetakis A, Miriagou V, Avgerinou H, Kyriakis KP, Maniatis AN, et al. Antimicrobial susceptibility of Neisseria gonorrhoeae in Greece: data for the years 1994-2004. The Journal of antimicrobial chemotherapy. 2006;57(4):775-9.

3) Tanaka M, Nakayama H, Haraoka M, Saika T, Kobayashi I, Naito S. Susceptibilities of Neisseria gonorrhoeae isolates containing amino acid substitutions in GyrA, with or without substitutions in ParC, to newer fluoroquinolones and other antibiotics. Antimicrobial agents and chemotherapy. 2000;44(1):192-5.
4) Trees DL, Sandul AL, Whittington WL, Knapp JS. Identification of novel mutation patterns in the parC gene of ciprofloxacin-resistant isolates of Neisseria gonorrhoeae. Antimicrobial agents and chemotherapy. 1998;42(8):2103-5.
5) Unemo M, Shafer WM. Antimicrobial Resistance in Neisseria gonorrhoeae in the 21st Century: Past, Evolution, and Future. Clinical microbiology reviews. 2014;27(3):587-613.

Autoimmune Hepatitis: Investigating the Mechanisms of the Disease

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**ABSTRACT:**
Autoimmune Hepatitis (AIH) is a chronic autoimmune inflammatory disease which affects the liver. It presents with hepatocellular necrosis, inflammation and fibrosis, which can lead to cirrhosis and liver failure. The aetiology of AIH has not been elucidated entirely, however, it seems that environmental factors, along with immunogenetic causes, play a significant role in the mechanism of the disease. The purpose of this paper is to examine the main theories surrounding the onset of AIH, emphasising the possible underlying mechanisms. There seems to be three types of AIH, each presenting with different autoimmunological properties; in AIH-1 there are ANA and ASMA antibodies, in AIH-2 anti-LKM antibodies, and in AIH-3 anti-SLA antibodies. All types of AHI have a similar disease profile in terms of clinical, biochemical and histological characteristics and genetic predisposition. Furthermore, there seems to be a susceptibility to the disease if the patient is female, as is common in the majority of autoimmune diseases (Fairweather et al., 2008). A review was carried out using mainly online medical databases of previous research papers on the matter (PubMed). The results uncovered a plethora of possible mechanisms of AIH. The mechanisms of faulty cytotoxic T-cells have been put forward, describing that during imperfect thymic selection, certain T-cells escape the rigorous selection process. Coupled with defective HLA-II presentation on the surface of hepatocytes, a cascade of events occurs, which can lead to the activation of the faulty cytotoxic T-cells and consequently, hepatocellular damage. Further research has uncovered a link between different HLA alleles and AIH, showing, for example, that the HLA DRB1*04:05-DQB1*04:01 allele may cause a 30% increase in the development of AIH (Umemura et al., 2014). Lastly, polymorphisms on the FAS gene may cause an increase in the incidence of AIH (Agarwal et al., 2007). While AIH mechanisms are not fully understood, it is one of the few liver diseases with excellent response to treatment (Schalm et al., 1977). Fortunately, more research is being carried out to shed light on other possible mechanisms, to discover new and more successful treatments and ensuring a better quality of life for our patients.

**REFERENCES*:***

1) Gershwin et al. (2008). Liver Immunology: Principles and Practice. New Jersey: Humana Press Inc.
2) Agarwal et al. (2007). A Functional Fas Promoter Polymorphism is Associated with a Severe Phenotype in Type 1 Autoimmune Hepatitis Characterized by Early Development of Cirrhosis. Tissue Antigens, 69(3), 227-235. doi:10.1111/j.1399-0039.2006.00794.x
3) Fairweather et al. (2008). Sex Differences in Autoimmune Disease from a Pathological Perspective. American Journal of Pathology, 173(3), 600-609. doi:10.2353/ajpath.2008.071008
4) Schalm et al. (1977). Severe Chronic Active Liver Disease. The American Journal of Digestive Diseases, 22(11), 973–980. doi:10.1007/BF01076196
5) Umemura et al. (2014). Human Leukocyte Antigen Class II Haplotypes Affect Clinical Characteristics and Progression of Type 1 Autoimmune Hepatitis in Japan. PLoS One, 9(6), e100565. doi:10.1371/journal.pone.0100565

**Treatment of chronic hepatitis C in patients with β-thalassemia major with direct-acting antivirals in South-Western Greece**

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**ABSTRACT:**

**Introduction:** Infection with hepatitis C virus (HCV) and iron overload are the main causes of liver disease in patients with β-thalassemia major (βTM). The worldwide prevalence of HCV infection among patients with βTM is estimated to be more than 60%. During the last decade, the only available treatment for HCV infection was the combination of pegylated interferon-alpha and ribavirin which was not well-tolerated and was accompanied by significant side effects (sustained virological response (SVR) rate up to 70%). The recent introduction of direct-acting antiviral drugs (DAAs) has greatly improved the management of HCV infected patients, allowing rapid HCV clearance and increasing the SVR.

**Purpose:** The aim of this study was to examine the efficacy and safety of IFN-free regimens, including DAAs, in patients with βTM and advanced liver disease, as a result of chronic hepatitis C (CHC) infection in our centre.

**Design – Methods:** Forty-nine (n=49) βTM patients with chronic active HCV infection [M/F: 22/27, median age: 41 years (range 31-57), median BMI: 22 (range 18-30)], who were under antiviral treatment were recruited. Patients were followed up for a median period of 261 months (range 1-390). The stage of liver disease was assessed using transient elastography and/or liver histology. Twenty-five patients (n=25, 53.2%) had a previous splenectomy, 45 patients had undergone liver biopsy (95.7%) and 9 patients had been diagnosed with liver cirrhosis (19.1%). The patients had received IFN-a2b (91.3%) or PegIFN-a2b (8.7%) in the past. Nine (n=9) patients who did not achieve sustained virological response with the IFN-containing regimens, received DAAs treatment. Four combination regimens were used: sofosbuvir + ledipasvir (n=3, 33.3%); dasabuvir + ombitasvir + paritaprevir + ritonavir (n=1, 11.1%); sofosbuvir + velpatasvir (n=2, 22.2%); sofosbuvir + daclatasvir (n=3, 33.3%).

**Results:** Totally, 13/49 (28.3%) patients achieved SVR following the first treatment course and 18/49 (37.5%) following repeated courses of IFN-based therapies. From those patients, who failed to achieve SVR (n=31), 9 patients were retreated with DAAs. The overall SVR rate in patients who received DAAs was 8/9 (88.9%). No major (grade 3 or 4) side effects were recorded.

**Conclusions / Implications:** In this cohort of patients with βTM, treatment of HCV infection with DAAs was highly effective, suggesting the use of DAAs even in those patients, who had not previously responded to antiviral treatment with IFN-based therapy.

**REFERENCES**

1) Triantos C, Kourakli A, Kalafateli M, Giannakopoulou D, Koukias N, Thomopoulos K, et al. Hepatitis C in patients with beta-thalassemia major. A single-centre experience. Ann Hematol. 2013 Jun;92(6):739-46.

2) Kalafateli M, Kourakli A, Gatselis N, Lambropoulou P, Thomopoulos K, Tsamandas A, et al. Efficacy of Interferon A-2b monotherapy in Beta-thalassemics with chronic hepatitis C. J Gastrointestin Liver Dis. 2015 Jun;24(2):189-96

3) Sinakos E, Kountouras D, Koskinas J, Zachou K, Karatapanis S, Triantos C, et al. Treatment of chronic hepatitis C with direct-acting antivirals in patients with beta-thalassaemia major and advanced liver disease. Br J Haematol. 2017 Jul;178(1):130-6

4) Kountouras D, Tsagarakis NJ, Fatourou E, Dalagiorgos E, Chrysanthos N, Berdoussi H, et al. Liver disease in adult transfusion-dependent beta-thalassaemic patients: investigating the role of iron overload and chronic HCV infection. Liver Int. 2013 Mar;33(3):420-7.

5) Nagral A, Sawant S, Nagral N, Parikh P, Malde P, Merchant R. Generic Direct Acting Antivirals in Treatment of Chronic Hepatitis C Infection in Patients of Thalassemia Major. J Clin Exp Hepatol. 2017 Sep;7(3):172-8.

**ICF: A holistic, multidisciplinary, bio-psycho-social approach for the assessment of people with disabilities**

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**ABSTRACT:**

**Introduction:** Over 650 million people worldwide, 80 million of whom are Europeans, live with disabilities. International Classification of Functioning, Disability and Health (ICF), was approved by the World Health Assembly on May 2001. ICF takes into account body function and structure, activity limitations, and environmental elements affecting the aforementioned. Particularly; ICF conceptualizes an individual's level of performance as a dynamic interaction amongst their health conditions, environmental and personal factors beyond a conventional, ICD-10 medico-centered definition.

**Purpose:** This paper aims at evaluating ICF as a system that can guide policy to promote public health and disabled people's quality of life.

**Methods:** A systematic literature review was performed via PubMed and public Records obtained by National Ministries. The review covered the period from May 2001 - February 2018, using original research publications, annual census reports and systematic reviews.

**Results:** The ICF model has had diverse applications, proving its flexibility and utility as a model of function and disability. It has been validated in over 10 languages with high content validity irrespective of socioeconomic status, employment, income, age, sex, religious or educational background or health system structure. In terms of the UN Convention on the Rights of Persons with Disabilities, ICF has been found to promote the rights-based positive approach to disability by prioritizing focused vertical interventions. ICF core sets have also been developed to represent the typical spectrum of functioning of patients with specific diseases, as reference standards for clinical practice and research.

**Conclusions:** ICF has been adopted by the WHO, the World Bank and the European Commission as a valid classification tool in rehabilitation, clinical practice, and research. Since 2013, the system has also been successfully introduced in Cyprus, showing that it is a reasonable and cost-effective approach towards disability assessment within a context of economic crisis and health system reform.

**REFERENCES:**

1) Mitra, S. (2018). The Human Development Model of Disability, Health and Wellbeing.

2) World Health Organization. (2002). International Classification of Functioning, Disability and Health (ICF). [online] Available at: http://www.who.int/classifications/icf/en/ Rom

3) J.M. Perenboom, Astrid M.J. Chorus. (2009). Measuring participation according to the International Classification of Functioning, Disability and Health (ICF). [online] Available at: http://www.tandfonline.com/doi/abs/10.1080/0963828031000137081

4) Helena Hemmingsson, Hans Jonsson. (2005). An Occupational Perspective on the Concept of Participation in the International Classification of Functioning, Disability and Health—Some Critical Remarks. [online] Available at: https://ajot.aota.org/Article.aspx?articleid=1872109

5) Stucki, Gerold. (2005). International Classification of Functioning, Disability, and Health (ICF): A Promising Framework and Classification for Rehabilitation Medicine. [online] Available at: https://journals.lww.com/ajpmr/Abstract/2005/10000/International_Classification_of_Functioning,.2.aspx

## *ORAL PRESENTATIONS: MULTIDISCIPLINARY SESSION*

### Role of Calcium Inhibitor Nicardipine on diminishing of cellular degeneration at 6-OHDA RATS

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**ABSTRACT:**

**Introduction:** The low levels of glutathione reductase (GSH) correlated with the development of the associated number of human diseases, such as neurodegenerative diseases. These diseases have an influence on the increase of the oxidative stress in the body.

**Aim:** The study of L-type calcium channel inhibitor nicardipine in the prevention of motor impairments in rats after induction of early phase of Parkinson's disease by using 6-hydroxy dopamine (6-OHDA). After 48 hours of induction animals were treated with nicardipine for 20 days, then behavioral and Apomorfin test, biochemical parameters were evaluated to examine the effectiveness of the treatment.

**Materials and Methods:** After infusion of 12□g/kg 6-hydroxy dopamine (6-OHDA) by stereotaxic frame guided infusion in situ in rat's brain, animals develop after 20 days Parkinsonian like symptoms. These symptoms are result of irreversible binding of 6-OHDA to the Dopamine receptors blocking their function and consequent cellular degeneration. Mitochondrial damage and oxidative stress plays important role in Parkinson's disease (PD). Mitochondria are very crucial part in the cell and have many cellular functions including the generation of ATP and intracellular calcium (Ca 2+) homeostasis

**Results:** The treatment with Nicardipine showed significant increase in brain dopamine level, improves the complex I activity and also ameliorate the amount of antioxidant enzymes like superoxide dismutase (SOD), glutathione reductase (GSH), catalase (CAT).

**Conclusions:** These results strongly suggest that synergetic effect and good neuroprotective effect is demonstrated in comparison of single medicine treatment on motor, biochemical and antioxidant parameters in early phase of Parkinson's disease. Malonyldialdehyde (MDA) concentrations were lower in the striatum and cerebral cortex of sham-treated rats. The administration of 6-OHDA increased MDA levels which lead to increased levels of oxidized (GSSG)/reduced (GSH) glutathione ratio in the striatum and blood plasma in 6-OHDA rats alone, compared with sham-treated controls.

### Thymus Marshallianus as a novel therapeutic agent in reducing oxidative stress and anxiety in diabetes mellitus

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**ABSTRACT:**

**Introduction:** Diabetes mellitus (DM) is a chronic metabolic disorder with a high worldwide prevalence characterised by high glucose levels and increased risks of associated complications, depression and anxiety. Recent studies have revealed therapeutically important pharmacological properties of natural extracts in the treatment of metabolic and psychiatric disorders. Thymus Marshallianus (TM) due to antioxidant effect has proven effective in metabolic diseases.

**Purpose:** The aim of the study is to evaluate the comparative effect of two species of TM, wild flora (TMW) and culture (TMC), on motility and anxiety, blood and brain oxidative stress parameters on animal model with streptozotocine (STZ) induced diabetes (DM).

**Design-Methods:** 36 Wistar rats (G= 130±15g) randomised in 4 groups (n=9) were used: group 1, without DZ, received 0.5 ml carboxymethylcellulose (CMC); group 2, with DZ, received 0.5 ml CMC and groups 3 and 4, with DZ, were treated with 200 mg/kg b.w. TMW respectively TMC in 0.5 ml CMC. DM was induced by a single intramuscular injection of STZ (30 mg/kg b.w.) and all substances were administered orally 14 days before and 14 days after DM induction. In day 15 the behaviour of animals was evaluated using open field test (OFT) and elevated plus maze (EPM) and blood samples were collected for measurement of glycaemia and oxidative stress parameters (malondialdehyde – MDA and glutathione reduced/glutathione oxidized ratio - GSH/GSSG). Additionally, blood glucose levels were measured at 3 and 7 days after DM induction. Hippocampus (HC) and frontal lobe (FL) were taken for evaluation of oxidative stress and nuclear factor kappaB (NF-kB) levels.

**Results:** In the OFT, the animals with STZ+CMC did not show significant differences with respect to motility compared to CMC group while in EMP the animals travelled a shorter distance in the closed arms. TMW and TMC administrations reduced total and periphery travelled distance in OFT, increased the distances travelled in the closed arms and improved 5 times the entrances and time spent in the open arms in EPM. In the FL, HC and serum the MDA levels increased in animals with DZ in parallel with decrease of GSH/GSSG ratio, especially in HC. The lipid peroxidation diminished in FL after TMW and TMC administrations and the antioxidant capacity in FL was improved in TMW treated group. TMW and TMC reduced blood glucose levels, effect maintained for 14 days after STZ administration. NF-kB levels increased in HC in animals with STZ+TMW suggesting the beneficial role of TMW in improving synaptic plasticity and memory.

**Conclusions/Implications:** The administration of TM had a positive effect on the redox misbalance and NF-kB activation in brain, particularly in HC, enhanced the locomotion and reduced the anxiety in animals with DZ. Our findings suggest that TM administration might represent a good option in anxiety-like disorders related to diabetes by neutralizing free radicals generated by this metabolic disease.

**REFERENCES:**

1) de Morais H, de Souza CP, da Silva LM, Ferreira DM, Werner MF, Andreatini R, da Cunha JM, Zanoveli JM, "Increased oxidative stress in prefrontal cortex and hippocampus is related to depressive-like behavior in streptozotocin-diabetic rats" Behavioural Brain Research, 2014 Jan 1;258:52-64

2) Maritim AC, Sanders RA, Watkins JB 3rd, “Diabetes, oxidative stress, and antioxidants: a review”, Journal of Biochemical and Molecular Toxicology, 2003;17(1):24-38

3) Baynes JW, “Role of oxidative stress in development of complications in diabetes”, Diabetes, 1991 Apr;40(4):405-12.

4) Xu Y, Wang C, Klabnik JJ, O'Donnell JM, “Novel therapeutic targets in depression and anxiety: antioxidants as a candidate treatment”, Current Neuropharmacology, 2014, 12(2):108-19

5) Jia HL, Ji QL, Xing SL, Zhang PH, Zhu GL, Wang XH, “Chemical composition and antioxidant, antimicrobial activities of the essential oils of Thymus marschallianus Will. and Thymus proximus Serg”, Journal of Food Science, 2010 Jan-Feb;75(1):E59-65

**Kisspeptin: from physiology to clinical implications**

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**ABSTRACT:**

**Introduction**: Kisspeptin, the protein encoded by the KISS1 gene, was initially identified in mammals as a ligand of the G protein-coupled receptor 54, capable of suppressing melanoma and breast cancer metastasis. This protein, along with neurokinin B (NKB) and dynorphin (DYN), is a part of a subgroup of neurons (KNDy), playing a crucial role in the gonadotropic axis activation, the puberty onset and the control of reproduction. Specifically, kisspeptin after receiving paracrine stimuli from NKB and inhibitory feedback from DYN, binds to receptors found on GnRH neurons, thus their activity is stimulated, so they secrete GnRH and trigger downstream events that support reproduction.

**Purpose:** This report aims to review the regulatory role of KNDy system on puberty onset and to introduce the clinical applications of kisspeptin in IVF and in treatment of certain neuroendocrine defects.

**Methods:** A literature search was performed in PubMed. English-language articles published from January 2007- December 2017 were investigated, with priority given to articles reporting original research, on both human and animal studies, and especially randomized controlled trials.

**Results:** Data demonstrated that KNDy system regulates reproductive function, as its peptides express estrogen and progesterone receptors that transmit the feedback effects of these steroids to GnRH neurons. Current research focuses on the manipulation of the KNDy system, to improve gonadal sex steroid production in disorders characterized by reduced LH pulsatility; hence, clinical applications in cases like, hypothalamic amenorrhea (HA) and hypogonadotropic hypogonadism (HH) are offered. Additionally, kisspeptin therapy contributes to the improvement of In Vitro Fertilization (IVF) technique, since gonadotropic production is stimulated in a more physiological way with this type of therapy, resulting in a decreased risk of acquiring ovarian hyperstimulation syndrome (OHSS). Moreover, kisspeptin antagonists reduce follicular development and prevent ovulation, thus they act as more beneficial female contraceptives, especially in cases that exogenous estrogen is not recommended. These antagonists can also treat hormone-dependent disorders, such as endometriosis, precocious puberty and metastatic prostate tumors. However, abnormalities in the function of the KNDy system, can lead to neuroendocrine defects, like the polycystic ovarian syndrome or they can influence puberty onset.

**Conclusions:** Kisspeptin stimulates GnRH neurons, by acting downstream to metabolic signals. Its signaling can activate the gonadotrophic axis, regulate puberty onset, gonadal sex steroid production and metastasis of specific tumors. Additionally, it exhibits clinical applications in cases like HA or HH and kisspeptin therapy, is a promising advance that successfully and safely causes oocyte maturation in patients undertaking IVF treatment at high risk of developing OHSS.

**A rational approach to multiple sclerosis differential diagnosis**

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**ABSTRACT:**

**Introduction:** Multiple sclerosis (MS) is a chronic autoimmune inflammatory disease of the central nervous system (CNS). The clinical presentation varies with many different signs and symptoms. Thus MS can mimic a variety of other diseases and the differential diagnosis is often difficult and deceitful.

**Purpose:** Try to identify the factors that may mislead to make a false diagnosis, by misinterpreting the clinical and laboratory findings. We try to identify the symptoms that will guide us to consider other diseases and make the MS diagnosis more unlikely and these symptoms that will help us identify and secure the MS diagnosis. Additionally the most common diseases that mimic MS will be pointed out as well as that the evidence that will help secure their diagnosis.

**Design- Methods:** We reviewed the current literature from online databases such as Pubmed and Scopus, we included presentations from international conferences, current guidelines and recently published articles in relevant journals.

**Results:** False diagnosis varies between 3-35% (in specialized MS centers up to 10%). The diseases that are included in the differential diagnosis are: 1. Diseases with similar clinical presentation, 2. Diseases with similar MRI findings, 3. Diseases with similar findings in the cerebrospinal fluid, and 4. Diseases which combine the above mentioned characteristics. The possibility of false diagnosis is reduced after the induction of the MRI in the diagnostic process and the revised MAGNIMS criteria. However the "typical" MRI findings alone can not determine the right diagnosis, so doctor's clinical thinking and diagnostic ability is still of great essence. Diagnosis is easy if the typical symptoms are present (optic neuritis (ON), internuclear ophthalmoplegia (IO), incomplete transverse myelitis). False interpretation of the clinical findings is not uncommon especially if non-specific symptoms such as rigidity, weakness, headache, limb pain, sensory disturbances are present and no specific neurological disease can be identified. Rushing to a diagnosis to provide a cause for the patient symptoms may cause more harm than good.

**Conclusions:** Diagnosis of MS still remains a challenge. There is no pathognomonic test and implementing the diagnostic criteria is the single best way to avoid false diagnosis. Our best chance is to reevaluate MS diagnosis during each encounter with our patient. Right and precise diagnosis is the cornerstone of the effective treatment. Especially for MS, it is of vital essence the right as much as the timely diagnosis. In that way the benefits we gain are: 1. Timely treatment to the patients that need it, 2. Protect patients from unnecessary drug treatment, 3. Rational allocation of national capital (expensive treatment, subsidies and loss of working hours), and 4. Finally preserve the trust of our patients in the medical care and protect them from the economic social and emotional consequences of a chronic disease.

**REFERENCES:**

1) Kim, Sung-Min, et al. "Differential diagnosis of neuromyelitis optica spectrum disorders." Therapeutic advances in neurological disorders 10.7 (2017): 265-289.

2) Filippi, Massimo, et al. "MRI criteria for the diagnosis of multiple sclerosis: MAGNIMS consensus guidelines." The Lancet Neurology 15.3 (2016): 292-303.

3) Rudick, Richard A., and Aaron E. Miller. "Multiple sclerosis or multiple possibilities The continuing problem of misdiagnosis." (2012): WNL-0b013e318259e2e2.

4) Miller, D. H., et al. "Differential diagnosis of suspected multiple sclerosis: a consensus approach." Multiple Sclerosis Journal 14.9 (2008): 1157-1174.

5) Palace, J. "Making the diagnosis of multiple sclerosis." Journal of Neurology, Neurosurgery & Psychiatry 71.suppl 2 (2001): ii3-ii8.

**Tale of 2 syndromes: historical reminiscence, underlying genetic causes & clinical manifestations Other.**

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**ABSTRACT:**

**Study objectives**: Angelman syndrome is a complex genetic disorder that primarily affects the nervous system. Prader-Willi syndrome is a complex genetic condition that affects many parts of the body.Seems that both appear multiple anomalies and mental retardation. Despite , some different clinical manifestations , both syndromes appear the same deletion in Chromosome 15, as well. Revealing that particular DNA repeats may be involved with inter - and intra chromosomal misalignment and homologous recombination , leading to the common deletion in both syndromes.

**Methods**: Charts , figures and tables derived from primary research both on molecular underlying and clinical manifestations. Particularly , show the molecular and clinical similarities and differences of Angelman ( AS) and Prader Willi ( PWS ) Syndromes. We cannot disregard the fact that tables make obvious that the Prader - Willi ( PWS ) and Angelman ( AS ) syndromes are clinically distinct developmental and neurobehavioral disorders , resulting from the loss of imprinted gene expression within chromosome 15q11-q13.

**Results**: OR Diagnostics diagrammes pinpointing international guidelines on diagnosing each syndrome, avoiding misdiagnosis. A practical set of molecular genetic testing and reporting guidelines has been developed for these two disorders. In addition , advice is given on appropriate reporting policies , including advice on test sensitivity and furthermore the possibility of differential diagnosis is discussed.

**Conclusion**: We end up to the conclusion that both syndromes share a similar and uncommon genetic basis: They involve genes that are located in the same region in the genome and are characterized by genetic imprinting. Both could came from a structural abnormality of imprinting center , known as an imprinting mutation.

**REFERENCES**:

(1) Agnieszk Rusinka, Danuta Chlebna Sokol, Recurrent fractures as a new skeletal problem in the course of Angelman syndrome, Bone, volume 55, issue 2, August 2013, pp 461-464

(2) E. Origlane, R. Rein, V. Tillman, T. Talvik, K. Ounap, Pediatric Neurology, 33 (2005), pp 66-69

(3) G. Coppola, A. Verrotti, C. Mainolfi, G. Auricchio, D. Fortunato, F. F. Operto, A. Pascotto, Pediatric Neurology 37 (2007) pp 411-416

(4) Paroxysmal tonic upward gaze complicating Angelman syndrome, Fukumura S, Watanabe T, Takayama R, Tsutsumi H. Pediatr Neurol. 2015 Jan;52(1):125-7. doi: 10.1016/j.pediatrneurol.2014.08.022. Epub 2014 Sep 4.

(5) Glassman LW1, Grocott OR2, Kunz PA3, Larson AM2,4, Zella G,5, Ganguli K4,6, Thibert R1,2,4, Prevalence of gastrointestinal symptoms in Angelman syndrome

**We treat patients, not just clinical cases: a survey on the doctor-patient relationship.**

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**ABSTRACT:**

**Introduction:** Multiple factors affect the doctor-patient relationship which may have a direct impact on the course of the disease, especially in patients suffering from chronic diseases.

**Purpose:** The purpose of this survey is to detect and point out the problems that may occur during a visit to the doctor. It is also important to recognize the factors which cause these problems. By finding out these factors, it will become easier to deal with these problems. Thus, each patient will be able to have the best possible interaction with the healthcare providers.

**Methods:** A total of 571 people answered a structured questionnaire, randomly chosen out of 691 people, using the Random UX software, so as to be representative according to the Hellenic population, as defined in 2011. The answers were received through online forms and a paper-based version. The multiple choice questions resulted from literature research and analysis.

**Results:** The three most important issues, which seem to disturb patients the most, are: 1. The patient has no time to explain his/her problem as he/she wishes, 2. The patient cannot fully understand what is going on with his/her health, because of the foreign or medical terminology used by the doctor and 3. The doctor has no empathy for the patient's health problem. Only 14,8% of the patients were asked during their last visit to the doctor about their emotional well-being. Concerning patients' attitudes, 76,1% of the respondents give honest answers to their doctor. 52,4% follow precisely the doctor's

prescription and 53,3% perform always the tests their doctor prescribes. 23,3% of the respondents have questions about the way their prescribed medication should be taken. 12,6% believe that if they offer the doctor more money or a present, they will receive a more favorable approach, whereas 46,6% believe that the height of the medical consultation fee does not correspond to the doctor's skills. Finally, 27,9% choose consistently one doctor to follow them up, whereas 21,6% always seek a second opinion.

**Conclusions:** Patients would like their doctors to give them more time, to talk to them simply and have more empathy for their health problems. Patients are often confused and mistrustful. This study underlines the need of more personalized and humane treatment, which will improve the patient-doctor relationship.

**REFERENCES:**

1) Desjarlais-deklerk K., 2013, Instrumental and socioemotional communications in doctor-patient interactions in urban and rural clinics, BMC Health Serv Res, 8;13:261

2) Rees S, 2009, Promoting and supporting self-management for adults living in the community with physical chronic illness: A systematic review of the effectiveness and meaningfulness of the patient-practitioner encounter, JBI Libr Syst Rev, 7(13):492-582

3) Justich Zabala PR., 2018, Six minutes, Arch Argent Pediatr, 116(1):e70-e74.

4) Gopichandran V., 2015, Trust in the physician-patient relationship in developing healthcare settings: a quantitative exploration, Indian J Med Ethics, 12(3):141-8.

5) Greenfield G., 2014, Wake up, wake up! It's me! It's my life! patient narratives on person-centeredness in the integrated care context: a qualitative study, BMC Health Serv Res, 29;14:619

**The use of Indocyanine green in Endocrine Surgery**

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**ABSTRACT:**

**Introduction:** The inconsistent reliability of established preoperative imaging technology and limitations of intraoperative visualizing options have been associated with difficulty in surgical navigation and unsuccessful outcomes. In research for novel modalities, indocyanine green (ICG) fluorescence imaging has taken the forefront as the “real-time” intraoperative guide. Its emerging use in endocrine surgery has been described in operations reporting different dosage, technical equipment and results, especially in parathyroid, thyroid and adrenal surgical procedures. Due to its specific properties, the compound acts as a contrast agent for perfusion assessment and delineation of richly vascularized structures such as endocrine glands and tumors in real time.

**Purpose:** Other groups have previously reviewed the assays of ICG in types of endocrine surgery, however, to our knowledge, an inclusive consensus of its use in this field is lacking. The aim of the present study is to provide a cumulative review of technical details (dosing, technique, encountered shortcomings etc) and results obtained regarding the type of endocrine surgery.

**Design- Methods:** We performed a bibliographic research in PubMed, Scopus and Embase, employing the search terms "indocyanine green AND endocrine surgery OR thyroid OR parathyroid OR adrenal gland". Selection criteria were the relevance of the research question, operative course of ICG administration, recorded employment of and comparison to other imaging methods, complications of specified presence or absence, and documented outcome concerning ICG. After careful study, we categorized the selected papers by endocrine structure under visualization to be discussed. The most encountered articles referred to parathyroid gland imaging; therefore, we further sub-categorized these articles by type of surgery performed.

**Results:** 24 articles were found to match our search criteria. Of these, 17 applied to parathyroid, 4 to adrenal and 3 to thyroid imaging. Occasional discrepancy among some studies of the same objective was attributed to the small sample size and variations in patient clinical background. Overall, ICG was found to enhance the surgical experience auxiliary to traditional imaging options.

**Conclusions:** ICG was shown effective in all adrenal procedures, however, in neck surgery, superior results were obtained in tumor demarcating, hyperplastic glands, reoperative surgery and ectopic gland localization rather than monitoring normal arathyroid glands that are embedded in the thyroid. Overall, ICG demonstrates a high safety, affordability and convenience profile. It is able to provide the surgeon with greater accuracy in tracking the effects that mechanical manipulation has on the viability of organ structures, facilitate navigation in the common cases of discordance or doubt and allow timely prevention or fixation of otherwise inevitable surgical complications.

**REFERENCES:**

1) Zaidi N, Bucak E, Okoh A, Yazici P, Yigitbas H, Berber E. The utility of indocyanine green near infrared fluorescent imaging in the identification of parathyroid glands during surgery for primary hyperparathyroidism. Journal of surgical oncology. 2016 Jun;113(7):771-774.

2) DeLong JC, Chakedis JM, Hosseini A, Kelly KJ, Horgan S, Bouvet M. Indocyanine green (ICG) fluorescence-guided laparoscopic adrenalectomy. Journal of surgical oncology. 2015 Nov;112(6):650-653.

3) Manny TB, Pompeo AS, Hemal AK. Robotic partial adrenalectomy using indocyanine green dye with near-infrared imaging: the initial clinical experience. Urology. 2013 Sep;82(3):738-742.

4) Yu HW, Chung JW, Yi JW, Song RY, Lee JH, Kwon H, et al. Intraoperative localization of the parathyroid glands with indocyanine green and Firefly(R) technology during BABA robotic thyroidectomy. Surgical endoscopy. 2017 Jul;31(7):3020-3027.

5) Jitpratoom P, Anuwong A. The use of ICG enhanced fluorescence for the evaluation of parathyroid gland preservation. Gland surgery. 2017 Oct;6(5):579-586.

**The Byzantine hospitals and the hospitals in western Union**

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**ABSTRACT:**

**Introduction:** In 330 AD Konstantinos founded the so-called "New Rome" in Constantinople. Then began to write a new chapter in history, the Byzantine Empire, which was in prosperity for the next thousand years after 330 AD.

**Purpose:** This work attempts to capture the Byzantine hospitals from 330 and the following millennium. An effort is made to show the importance of Byzantine hospitals, how they started and what they left behind. It also compares the prevailing situation in Byzantium in regard to Health in West.

**Results:** It seems that prosperity in Byzantium is reflected in medical science and practice. Byzantium eventually transposes theory and medical practice in the Western Europe.

**Conclusion/Implications:** The flourishing of medicine is recorded in books, good medical practices are written in notes and books. Later, with the founding of universities and the training of a large number of students in medicine, all this knowledge is taught and bequeathed to the next generations.

**REFERENCES:**

1) Arturo Castiglioni, Ιστορία της Ιατρικής, ελληνική μετάφραση, τόμ. 1, Αθήνα 1961, σελ.252-255.

2) Francis Adams, The seven books of Paulus Aegineta. Translated from greek with a commentary embracing a complete view of the knowledge possessed by the Greeks, Romans and Arabians on all subjects connected with medicine and surgery. In three volumes, London 1844-47.

3) Rene Briau, Chirurgie de Paul d' Egine, Paris, 1855, με εισαγωσή και παράθεση του ελληνικού κειμένου του 6ου Βιβλίοου Περί χειρουργικής από την Επιτομή του Παύλου Αιγινήτη.

4) Kuehn G. C., Γαληνού Απαντα, Λειψία 1824, τόμ. 7, σελ. 725

5) Λασκαράτος Ι. Ιστορία της Ιατρικής. Εκδόσεις Π.Χ. Πασχαλίδης, Κεφάλαιο XII Βυζαντινή Ιατρική: 287, 2012.

# ORAL PRESENTATIONS: SURGERY SESSION

**Fuchs corneal dystrophy and cataract surgery**

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**ABSTRACT:**

**Introduction:** Fuchs corneal dystrophy (FCD) is a progressive endothelial disease that is characterized by the development of excrescences of Descemet's membrane that provoke endothelial cell apoptosis and loss of pump function. In later stages of the disease stromal edema and epithelial bullae are evident. It is thought to follow an autosomal dominant inheritance with incomplete penetration and is more common in women during their 6th decade of life. At the same time, a great proportion of patients with FCD suffer from cataract that may worsen their visual acuity. It is well known that cataract repairing surgery causes a mean of 8-13% endothelial cell loss and especially in patients with FCD endothelial cell numbers and density decrease even more with significant deterioration of their clinical presentation.

**Purpose:** This review demonstrates the proper management and treatment of patients with FCD and cataract, regarding the timing of intervention, the type of surgery, the risk or protective factors that affect the outcome and newer techniques that are being developed to improve the overall result.

**Results:** Since 1976, when "triple" procedure was introduced, concerning penetrating keratoplasty (PK), cataract removal and intraocular lens implantation(IOL), it has been the gold standard for treatment for patients with FCD and cataract, especially in elder ones, who benefited from the shortest recovery times and less anesthetic usage. A crucial risk factor that is widely used preoperatively to determine cataract removal alone or combined with keratoplasty is corneal thickness, with values greater than 640μm indicating the need for combined therapy. The technique used for cataract removal, also, plays a key role to confine the endothelial damage during surgery, with phacoemulsification being superior to extracapsular cataract extraction(ECCE). Additionally, several ophthalmic viscosurgical devices (OVD'S) have been explored to elucidate their role in protecting the endothelium during cataract surgery; out of them the soft-shell technique seems to surpass other viscoelastic materials. Ultimately, recent adoption of endothelial keratoplasty, especially Descemet stripping endothelial keratoplasty (DSEK) reduced postoperative complications, such as astigmatism, and has better ability to predict the refractory outcomes of the procedure compared to PK.

**Conclusions:** Patients with Fuchs corneal dystrophy developing senile cataracts require special management, while newly developed techniques in the field of ophthalmic surgery have added more viable options that enhance surgeon's ability to restore vision in such individuals.

**REFERENCES:**

1) Ventura AC, Walti R, Bohnke M. Corneal thickness and endothelial density before and after cataract surgery. Br J Ophthalmology. 2001;85:18–20.

2) Seitzman GD, Gottsch JD, Stark WJ. Cataract surgery in patients with Fuchs' corneal dystrophy: expanding recommendations for cataract surgery without simultaneous keratoplasty. Ophthalmology 2005; 112:441–446.

3) Tognetto D, Cecchini P, Ravalico G. Survey of ophthalmic viscosurgical devices. Curr Opin Ophthalmol 2004; 15:29–32

4) Bahar I, Kaiserman I, Levinger E, et al. Retrospective contralateral study comparing descemet stripping automated endothelial keratoplasty with penetrating keratoplasty. Cornea 2009; 28:485–488.

5) Jun B, Kuo AN, Afshari NA, et al. Refractive change after descemet stripping automated endothelial keratoplasty surgery and its correlation with graft thickness and diameter. Cornea 2009; 28:19–23.

**Inadvertent psoas hematoma following "blind" lumbar intrathecal injection: a case report and literature review**

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**ABSTRACT*:***
**Introduction:** 'Blind' intrathecal injection carries the risk of penetrating the anatomical structures up to the psoas muscle, thus causing inadvent psoas hematoma.
**Purpose:** To present a case that indicates the risk of bleeding with 'blind' (without fluoroscopy) spinal injection and to perform a literature search of similar cases.
**Design - Methods:** A case of an obese 49-year-old patient with spastic quadriplegia and scoliotic spine who suffered from psoas hematoma following a lumbar intrathecal injection of baclofen (as a trial for baclofen infusion pump placement) is presented. Also a systematic review of the literature for psoas hematoma following injection procedures.
**Results:**A 'blind' lumbar intrathecal injection of baclofen was performed. With the patient on the left side with forward flexed spine and under local anesthesia, a spinal needle of 22 gauge thick and 90 millimeters long was used to inject baclofen intrathecally in the L3-L4 and L4-L5 interlaminar spaces but none has been successful (no backflow of cerebrospinal fluid). The procedure was abandoned 15 minutes later when the patient started being diaphoretic In same afternoon, the patient experienced clinical signs of blood loss (severe sweating with increased heart rate) and a large drop in hematocrit (from 39 to 26.5). An emergent CT of the abdomen showed an extensive left retroperitoneal hematoma with sufficient swelling of the psoas. The patient was transfused with 2 units of red blood cells and only 12 days later he continued the rehabilitation program.T There are no reports in the literature of a psoas hematoma following a lumbar intrathecal injection. However there are two reported cases of psoas hematoma after Veress needle insertion and CT-guided percutaneous needle biopsy of the L2-L3 disc and the L3 vertebral body.
**Conclusion/Impications:** There no other reports on the literature of psoas hematoma following 'blind' lumbar intrathecal injection. It is safer to perform lumbar spinal injections for intrathecal drug infusion with the aid of fluoroscopy, particularly in spastic obese patients with spinal disorders.

**REFERENCES:**

1) García-Alcázar, Diana, et al. "Psoas haematoma as a complication of Veress needle insertion: description of a case and literature review." BMC surgery 14.1 (2014): 104
2) Mifune Y, Yagi M, Iwasaki Y, Doita M. Pseudoaneurysm of Lumbar Artery following a Vertebral Biopsy: A Case Report. Case Rep Radiol. 2012;2012:127124.
3) Santillan A, Patsalides A, Gobin YP. Endovascular embolization of iatrogenic lumbar artery pseudoaneurysm following extreme lateral interbody fusion (XLIF). Vasc Endovascular Surg.2010 Oct;44(7):601-3.
4) Nijenhuis RJ, Sluzewski M, van Rooij WJ. Iatrogenic lumbar pseudoaneurysm causing dural sac compression after spine surgery. J Neurosurg Spine. 2009 Jun;10(6):585-6.
5) Filippiadis DK, Rodt T, Kitsou MC, Batistaki C, Kelekis N, Kostopanagiotou G, Kelekis A. Epidural interlaminar injections in severe degenerative lumbar spine: fluoroscopy should not be a luxury. J Neurointerv Surg. 2017 Sep 12. pii: neurintsurg-2017-013288. doi: 10.1136/neurintsurg-2017-013288. [Epub ahead of print].
6) Vorobeychik Y, Sharma A, Smith CC, Miller DC, Stojanovic MP, Lobel SM, Valley MA, Duszynski B, Kennedy DJ; Standards Division of the Spine Intervention Society. The Effectiveness and Risks of Non-Image-Guided Lumbar Interlaminar Epidural Steroid Injections: A Systematic Review with Comprehensive Analysis of the Published Data. Pain Med. 2016 Dec;17(12):2185-2202.

Patient presenting with Neurofibromatosis and Acute Peripheral Artery Disease

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**ABSTRACT:**

**Introduction**: Neurofibromatosis (NF) is a rare disease with an autosomal dominant pattern of inheritance occurring in 1 in 3000 individuals. The disease is characterized by multiple neurofibromas, as well as benign tumours of the peripheral and central nervous system. There are two types of neurofibromatosis (NF1 and NF2). 0,4–6,4% NF1 patients experience vasculopathy, including aneurysms, pseudoaneurysms, arteriovenous malformations and vascular stenosis. Defects are often asymptomatic and go unnoticed, however there is a significant mortality risk if affected blood vessels rupture.

**Case report**: A 43 year old woman is admitted presenting with hemodynamic instability, a voluminous and pulsating hematoma in the left upper arm and a rapidly swelling left hand. She was previously diagnosed with NF. Upon arrival her left hand is notably edematous with a circumference of 60 cm. CT angiography shows active extravasation from a left brachial artery pseudoaneurysm. Following vital sign assessment, the operation is performed during which 3.5 L of blood is evacuated from the pseudoaneurysm (>20 cm diameter). The fragility of the tissue prevents arterial reconstruction. Hemostasis is achieved by ligating the artery and surrounding tissue. The following day, the patient's overall status rapidly regresses; anemia intensifies and a growing hematoma in the left upper arm in the area of the pseudoaneurysm is observed. Following vital indications, an exarticulation is performed in the left arm by the shoulder joint. 5 days following the operation further bleeding is detected. 2.5 L of blood is evacuated from the left armpit area; hemostasis is performed. After a further 10 days, the patient's condition repeatedly regresses. Multiple pseudoaneurysms are angiographically visualized in the branches of a. subclavia; they occlude the endovascular pathway. Concurrently a massive hemocoagulotraxone is detected, as well as left lung compression. Thoracocentesis is performed, evacuating 1 L of blood through the drain, followed by pleural cavity surgical rehabilitation. 500 mL of a clot are evacuated. Henceforth the patient's condition significantly improves and she is discharged for outpatient observation.

**Conclusion**: Due to the pronounced fragility of the blood vessels, it is advised to immediately consider endovasal treatment (distally compensating for circulation through use of collaterals). It is advised to perform a precautionary prophylactic blood vessel screening for all NF patients, collecting the resulting data in a registry with the goal of quickening diagnoses in acute situations and aiding decision making relating to the most effective treatment method. Prophylactic aneurysm occlusion in asymptomatic patients should be considered.

**REFERENCES:**

1) Vascular defects in patients with neurofibromatosis are often asymptomatic and go unnoticed, however there is a significant mortality risk if affected blood vessels rupture.

2) Due to the pronounced fragility of the blood vessels, it is advised to immediately consider endovasal treatment in patients with neurofibromatosis and acute peripheral artery disease.

3) In literature there are only four cases which describe patients with neurofibromatosis and rupture of brachial artery. In only two of them the treatment was successful, so our case is the third.

4) It is advised to perform a precautionary prophylactic blood vessel screening for all neurofibromatosis patients.

5) Prophylactic aneurysm occlusion in asymptomatic patients should be considered.

**Surgical Management of the thyroid disease: an 8-year-long single-center experience**

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**ABSTRACT:**

**Introduction:** Over the last decades, thyroid disease has proven to be one of the most common surgical disease that the endocrine surgeon comes across in the everyday practice. Therefore, choosing the safest and most efficient therapeutic modality is crucial. According to the literature, total thyroidectomy

is the technique most often implemented with similar outcomes when compared to lobectomy or subtotal thyroidectomy[1, 2]. The most common and severe postoperative complications are: superior or recurrent laryngeal nerve injury (unilateral: voice change; bilateral: airway obstruction), hypoparathyroidism and neck hematoma. By choosing total thyroidectomy, the probability of finding an undiagnosed thyroid neoplasm in the histopathologic specimen increases, while the probability of reoperation decreases[3].

**Purpose:** The purpose of our study was to assess the different modalities utilized in our center, as well as the postoperative complications.

**Design-Methods:** We retrospectively reviewed the records of all the patients that underwent surgical management of thyroid disease in the 1st Department of Surgery, AUTh, Greece from January 2009 till December 2016. The data extracted were: type of thyroidectomy (total, subtotal, lobectomy), histopathologic findings and postoperative complications, such as hypoparathyroidism, hypocalcemia, recurrent nerve injury and neck hematoma.

**Results:** The study population consisted of 275 patients that underwent surgery for their thyroid disease. Of those 247 were total thyroidectomies, 7 subtotal thyroidectomies, 13 lobectomies, and 3 Hartley-Dunhill operations. Regarding the postoperative complications, 7 of our patients presented with voice change (2,54%), 13 with hypocalcemia (4,72%), and 4 with neck hematoma requesting immediate reoperation (1,45%).

**Conclusions/Implications:** According to our experience, as well as the literature, total thyroidectomy is the method of choice, especially when it comes to benign thyroid disease[3]. However, opinions diverge, as less than total thyroidectomy has once again been proposed for treating goiter[4]. Nevertheless, new long-term RCTs with additional data such as surgeons level of experience, treatment volume of surgical centers and details on techniques used are needed in order to deduce meaningful and solid outcomes[5].

**REFERENCES:**

1) Feroci F, Rettori M, Borrelli A, et al (2014) A systematic review and meta-analysis of total thyroidectomy versus bilateral subtotal thyroidectomy for Graves' disease. Surgery 155:529–540. doi: 10.1016/j.surg.2013.10.017

2) Li Y, Li Y, Zhou X (2016) Total Thyroidectomy versus Bilateral Subtotal Thyroidectomy for Bilateral Multinodular Nontoxic Goiter: A Meta-Analysis. ORL J Otorhinolaryngol Relat Spec 78:167–175. doi: 10.1159/000444644

3) Barczynski M, Konturek A, Hubalewska-Dydejczyk A, et al (2018) Ten-Year Follow-Up of a Randomized Clinical Trial of Total Thyroidectomy Versus Dunhill Operation Versus Bilateral Subtotal Thyroidectomy for Multinodular Non-toxic Goiter. World J Surg 42:384–392. doi: 10.1007/s00268-017-4230-1

4) Makay O (2017) Less than total thyroidectomy for goiter: when and how? Gland Surg 6:S49–S58. doi: 10.21037/gs.2017.10.02

5) Cirocchi R, Trastulli S, Randolph J, et al (2015) Total or near-total thyroidectomy versus subtotal thyroidectomy for multinodular non-toxic goitre in adults. Cochrane database Syst Rev CD010370. doi: 10.1002/14651858.CD010370.pub2

**Admission glucose and coagulopathy occurrence in patients with traumatic brain injury**

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**ABSTRACT:**

**Introduction:** Coagulopathy occurence is relatively common after Traumatic Brain Injury (TBI) and is related to outcome and patients' prognosis. Coagulopathy after TBI has been considered a manifestation of the disseminated intravascular coagulation (DIC), whereas the complex pathophysiology mechanisms underlying coagulopathy are multifactional and remain still undefined. TBI is also associated with a stress response that induces hyperglycaemia. Increased blood glucose levels after TBI are directly related to adverse outcome.

**Purpose:** The aim of this study was to investigate whether coagulopathy occurrence is associated with admission blood glucose levels in patients with TBI.

**Design - Methods:** This study retrospectively evaluated patients with TBI who were admitted to the Neurosurgical department of the University Hospital of Ioannina, Greece, over a 4-year period. Blood samples were collected on admission and subsequent samples were drawn daily. Exlusion criteria were used. Criteria for coagulopathy included an aPTT > 40 seconds and/or INR > 1,2 and/or a platelet count < 120*109 per litre. Continuous data are expressed as mean ± standard deviation. A 2-sided p-value < 0,05 was considered statistically significant.

**Results:** One-hundred and forty-nine patients met study criteria and were included in the study. Coagulopathy occurred in 22,2% (n= 34) of all patients, of whom 22 (14,8%) developed coagulopathy upon admission and 12 (8%) were diagnosed with coagulopathy 24 hours post-trauma. Patients with coagulopathy had significantly lower haemoglobin levels, increased INR, increased aPTT, increased neutrophil to lymphocyte ratio and midline shift on CT. Patients with severe TBI (GCS≤8) were more likely to develop coagulopathy. At admission patients with severe and moderate head injury had statistically significant higher serum glucose levels compared to patients with mild head trauma. The difference between the serum glucose levels 24 and 48 hours post trauma was significant only between patients with severe and mild head trauma. Using the ROC curve it was found that a serum glucose of 151mg/dl was the threshold for the discrimination of patients that developed coagulopathy. Logistic regression analysis revealed a significant positive correlation between coagulopathy occurrence and both serum glucose greater than 151 mg/dl and haemoglobin levels lower than 12,4 mg/dl.

**Conclusions:** Coagulopathy is a frequent event after TBI and is correlated with TBI severity. Patients with lower GCS score, lower haemoglobin levels at admission and increased blood glucose levels after TBI are of greater risk.

**REFERENCES:**

1) Pahatouridis D, Alexiou GA, Zigouris A, Mihos E, Drosos D, Voulgaris S. Coagulopathy in moderate head injury. The role of early administration of low molecular weight heparin. Brain injury 2010; 24:1189-1192.

2) Maegele M. Coagulopathy after traumatic brain injury: Incidence, pathogenesis and treatement options. Transfusion 2013;53:28S-37S.

3) Laroche M, Kutcher ME, Huang MC, Cohen MJ, Manley GT. Coagulopathy after traumatic brain injury. Neurosurgery 2012;70:1334-1345.

4) Sung J, Bochicchio GV, Joshi M, Bochicchio K, Scalea TM. Admission hyperglycemia is predictive of outcome in critically ill trauma patients. Journal of Trauma 2005;59:80-83.

5) Innerhofer P, Westermann I, Tauber H, Breitkopf R, Fries D, Kastenberger T, et al. The exclusive use of coagulation factor concentrates enables reversal of coagulopathy and decreases transfusion rates in patients with major blunt trauma. Injury 2013;44:209-216.

**Management of Hydrocephalus After Decompressive Craniectomy**

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***ABSTRACT:***

**Introduction:** Decompressive craniectomy (DC) is widely used to treat intracranial hypertension following traumatic brain injury (TBI), cerebral infarction and subarachnoid hemorrhage. On the other hand, DC is a known risk factor for the development of hydrocephalus and especially post-traumatic hydrocephalus. However, there is limited data on the development of hydrocephalus after decompressive craniectomy.

**Purpose:** The aim of this study is to investigate the optimal timing for shunt placement in patients with hydrocephalus after decompressive craniectomy (DC).
**Design- methods:** This study retrospectively evaluated 63 consecutive patients that underwent DC after TBI, intracerebral hemorrhage or middle cerebral artery infarct during a five year period. 23 out of the 63 patients were diagnosed with hydrocephalus based on CT-findings. These patients were divided into two groups; group A (first 11 patients) underwent a ventriculoperitoneal shunt (V-P shunt) placement simultaneously or before cranioplasty. In group B (the remaining 12 patients) cranioplasty and ventriculostomy with monitoring of intracranial pressure were performed. After 3-5 days of serial pressure measurements and follow-up CT scans, those with the most appropriate opening pressure underwent V-P shunt placement.
**Results:** In group A, 9 out of 11 patients developed treatment-related complications such as subdural hygromas or hematomas and epidural fluid collection. No patient in group B required reoperation. Furthermore, in group B, the revision of the valve's opening pressure with external device was the only intervention in the postoperative period.
**Conclusions:** In the present study, group A included more complicated cases that required reoperation, rehabilitation and longer hospital stay. On the contrary, group B which underwent a step by step surgical procedure was associated with fewer complications and none of the patients required re-intervention thanks to the use of programmable valves
**REFERENCES:**
1) Finger T, Prinz V, Schreck E, Pinczolits A, Bayerl S, Liman T, Woitzik J, Vajkoczy P. Impact of timing of cranioplasty on hydrocephalus after decompressive hemicraniectomy in malignant middle cerebral artery infarction. Clin Neurol Neurosurg. 2017;153:27-34.
2) Ding J, Guo Y, Tian H. The influence of decompressive craniectomy on the development of hydrocephalus: a review. Arq Neuropsiquiatr. 2014;72(9):715-20.
3) Vedantam A, Yamal JM, Hwang H, Robertson CS, Gopinath SP. Factors associated with shunt-dependent hydrocephalus after decompressive craniectomy for traumatic brain injury. J Neurosurg. 2017;16:1-6.
4) Honeybul S, Ho KM. Decompressive craniectomy for severe traumatic brain injury: the relationship between surgical complications and the prediction of an unfavourable outcome. Injury. 2014;45(9):1332-9.
5) Renate HL: The definition and classification of hydrocephalusQ A personal recommendation to stimulate debate. Cerebrospinal Fluid Res 2008;5:2.

**Subintimal recanalization for limb salvage in the case of long chronic total occlusion of superficial femoral artery where surgical treatment is not possible**
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**ABSTRACT:**
**Background:** If endoluminal recanalization of superficial femoral artery (SFA) is not feasible, surgical bypass is a valid alternative. However, if condition worsens after bypass placement and surgical reintervention is not possible, subintimal recanalization is often the only option for limb salvage.
**Case presentation:** An 81-year-old female patient was referred to the angiology department complaining of rest pain and nonhealing ulcer on the second toe. Her medical history included type 2 diabetes, hypertension and hyperlipidemia. Eleven years ago, she had an autologous femoropopliteal bypass performed on the right leg due to long SFA occlusion, not suitable for endovascular management. Physical examination revealed necrotic ulcer with exudation and infection of the toe. Ankle brachial index (ABI) of the right foot was 0.45, which is distinctive for critical limb ischemia. CT angiography showed an occlusion of femoropopliteal bypass and a 40 cm long calcified total occlusion of SFA and proximal popliteal artery. Multidisciplinary board opted for an endovascular treatment, because surgical treatment was no longer an option since there was no adequate outflow. Angiography confirmed long, extensively calcified occlusion. After several fruitless attempts to cross the occlusion,

we were able to recanalize SFA subintimally. Spontaneous distal true lumen re-entry was not successful, so Outback LTD catheter was used to facilitate it. Prolonged balloon inflation was applied to dilate the dissected segment and distal vessels. Stent was not used since it might not have expanded completely due to heavy calcifications. The control angiography showed very fast blood flow. After the intervention rest pain disappeared within a day and ulcer became dry within 2 days, yet not saving the patient from toe amputation due to necrosis present before procedure. Two months after the procedure, there were no signs of critical limb ischemia, ABI of the right leg improved to 1.0.

**Conclusion:** Subintimal recanalization of long chronic total occlusions is often technically feasible. Anyhow, the rationale of recanalization when treating critical limb ischemia should be to improve clinical symptoms like ulcer healing and pain reduction; long-term patency is not primary objective in such cases.