HAEMATOPOIESIS: “LIVING IN THE SHADOW” OF STEM CELL DIFFERENTIATION

M. JANKOWSKI¹,², M. DYSZKIEWICZ-KONWIŃSKA¹,³, M. MAGAS¹,⁵, M. SKORUPSKI⁴, G. GORECKI⁴, D. BUKOWSKA⁵, P. ANTOSIK⁵, M. JESETA⁶, M. BRUSKA¹, M. NOWICKI⁷, M. ZABEL⁷,⁸ and B. KEMPISTY¹,⁶,⁷

¹Department of Anatomy, Poznan University of Medical Sciences, Poznan, Poland
²School of Medical Sciences, University of Aberdeen, Aberdeen, United Kingdom;
³Department of Biomaterials and Experimental Dentistry, Poznan University of Medical Sciences, Poznan, Poland; ⁴Department of Game Management and Forest Protection, Poznan University of Life Sciences, Poznan, Poland; ⁵Centre for Veterinary Sciences, Nicolaus Copernicus University in Torun, Torun, Poland; ⁶Department of Obstetrics and Gynecology, University Hospital and Masaryk University, Brno, Czech Republic
⁷Department of Histology and Embryology, Poznan University of Medical Sciences, Poznan, Poland; ⁸Department of Histology and Embryology, Wroclaw Medical University, Wroclaw, Poland

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Haematopoiesis is one of the most well understood stem-cell associated processes. It is a process in which pluripotent hematopoietic stem cells (HSCs) self-proliferate and differentiate into all types of blood cells. The process takes place in marrow of the flat bones in adults, however its location changes several times through embryonic and foetal development. Given the broad range of blood cells and the major differences in their build and function, together with the fact that their numbers need to be maintained within relatively narrow margins in order to maintain homeostasis despite changing environmental conditions, makes the whole process of haematopoiesis highly regulated and depending on a variety of growth factors. When influenced by those, HSCs undergo several irreversible steps, with every next one committing them to an even more specialised fate, ending with all the specific types of mostly short-lived blood cells, that are unable to proliferate on their own and need constant replenishment from the HSC pool. Because the process of haematopoiesis is the only source of all the members of the group of cells performing a range of highly important roles in functioning of the organism, significant damage to the underlying stem cells can cause a range of severe diseases. Many treatments are suggested for managing their symptoms or slowing progress, with bone marrow transplant being one of the only ones that offer possible permanent solution and, despite being a relatively risky procedure, is being widely performed, with the methods constantly improving in order to achieve progressively better results in both treatability and survivability of the patients.
Crohn’s disease (CD) is an inflammatory bowel disease with a multifactorial etiology. Clinical features include mucosal erosion, diarrhea, weight loss and other complications such as formation of granuloma. In CD, granuloma is a non-neoplastic epithelioid lesion, formed by a compact aggregate of histiocytes with the absence of a central necrosis, however, the correlation among CD and the formation of granulomas is unknown. Many cases of granulomas in the extracellular site, related to CD, have been reported in the literature. These granulomas, at times, represented the only visible manifestation of the pathology. Extra intestinal granulomas have been found on ovaries, lungs, male genitalia, female genitalia, orofacial regions and skin. From the data in the literature it could be hypothesized that there is a cross-reaction of the immune system with similar antigenic epitopes belonging to different sites. This hypothesis, if checked, can place CD not only among inflammatory bowel disease but also among inflammatory diseases with systemic involvement.
Different Signals Induce Mast Cell Inflammatory Activity: Inhibitory Effect of Vitamin E

L. Tettamanti1, Al. Caraffa2, F. Mistrangelo3, G. Ronconi4, S. Kritas5, I. Frydas6 and P. Conti7

1Department of Medical and Morphological Science, University of Insubria, Varese, Italy; 2University of Perugia, Perugia, Italy; 3Department of Medical Science and Biotechnology, University of Foggia, Foggia, Italy; 4UOS Clinica dei Pazienti del Territorio, Policlinico Gemelli, Rome, Italy; 5Faculty of Parasitology, Aristotle University of Thessaloniki, Macedonia, Greece; 6Department of Microbiology, University of Thessaloniki, Thessaloniki, Greece; 7Postgraduate Medical School, University of Chieti, Chieti, Italy

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Vitamin supplementation in disease reduces morbidity and mortality in humans by promoting the activation of different genes which influence several pathways. The purpose of this article is to clarify the role of vitamin E in mast cell inflammation. Vitamin E is a fat soluble antioxidant which protects from low-density lipoprotein (LDL) oxidation. Vitamin E promotes a barrier function and anti-inflammatory responses by binding the regulatory domain of protein kinase Ca (PKCα) (a regulator and antagonist of heart failure) and decreases the activation of NF-κB, a proinflammatory transcription factor, causing the generation of cytokines/chemokines and mast cell activation. Mast cells participate in innate and acquired immunity and inflammation. Several factors, including cytokines and chemokines, regulate the development and migration of activated mast cells. Mast cells generate and release inflammatory compounds in asthma and allergic diseases and have a detrimental effect on the vessel wall, which can be inhibited by vitamin E. Vitamin E inhibits histamine release generated in activated mast cells, increases calcium Ca2+ uptake and prevents the oxidation of unsaturated fatty acids. Vitamin E is relatively non-toxic, however, administered at very high doses may suppress normal hematological response as well as causing other adverse effects. Therefore, vitamin E may be beneficial in the prevention of diseases mediated by mast cells and can have special value in the treatment of asthma and allergic diseases; however, the exact mechanism by which vitamin E acts is still unclear, thus warranting future research.
Relationship between the methylation status of the RASSF2A gene promoter and endometriosis-associated ovarian cancer (EAOC) was explored. Between January 2013 and January 2016, tissue samples were collected from 30 patients diagnosed with ovarian endometriosis cyst (EC group), 30 patients diagnosed with ovarian endometrial adenocarcinoma (OEA group) and 30 patients diagnosed with ovarian clear cell carcinoma (OCC group). Additionally, 30 cases of normal endometrium tissues were collected for the control group. The methylation status of the RASSF2A promoter was evaluated by combined bisulfite restriction enzyme analysis (COBRA). RT-PCR was used to detect the expression level of RASSF2A mRNA in tissues. Relationship between methylation status and RASSF2A mRNA expression level and the patient age, tumor clinical stage, tumor grading and pathological type were analyzed. Results showed that in the OEA and OCC groups, the methylation degrees of the RASSF2A promoter were obviously higher than that of the other two groups. The expression level of RASSF2A mRNA in the OEA and OCC groups was lower than that of the other two groups. The methylation degree of the RASSF2A promoter was related to clinical staging and grading. No relationship between the methylation degree of the RASSF2A promoter and patient’s age and the pathological type of the tissue was detected. We concluded that the methylation status of the RASSF2A gene promoter could be considered an excellent indicator for early detection of ovarian cancers.
The aim of the present study was to analyze the relationship between cerebral ischemia and immune effects. A total of 70 Kunming mice were randomly divided into two groups: a model group (60 mice) and a sham group (10 mice). The model group was divided into six subgroups (10 mice per group) which were categorized according to the following time periods of treatment: 6 h, 12 h, 24 h, 48 h, 72 h and 5 days. The temporary middle cerebral artery occlusion (tMCAO) mouse model was established using intracavitary suture. The degree of brain injury was evaluated by detecting the neurological deficit score (NDS). Following cerebral ischemia reperfusion, the edema of the brain tissue was aggravated, and the infarction area was increased. At 48 h, the volume of the cerebral infarction reached a peak (44.4±3.2%) and then it decreased. The NDS score gradually decreased, and the nerve function was gradually restored. At 6 h, the NDS score was 4.6±0.55, whereas at the 5 d time point, it was significantly decreased (P <0.05) to 2.2±0.45. Flow cytometry analysis indicated that the percentage of Th17 cells increased gradually following ischemia. At 24 h, the percentage of Th17 cells reached its maximum value (0.70±0.10%) compared with the sham and the 5 d groups (P<0.05). At 24 h, the percentage of Th17 cells reached the lowest value (0.9±0.29%), whereas at the 5 d time point it increased significantly (3.2±0.49%) compared with the normal level (P <0.05). The secretion of Th17 and Treg-associated cytokines was consistent with the number of Th17 and Treg cells following ischemia. However, the levels of IL-17A in the brain tissues and the serum indicated a tendency to increase following the prolongation of ischemia. This marker reached the maximum levels on day 5. The IL-17 brain level was 77.9±5.11pg/mL, whereas the serum level was 29.44±3.06pg/mL. The changes in the secretion of the Th17 and Treg-related inflammatory cytokines were consistent with the changes in the cell ratio of Th17 and Treg cells. A significant correlation was noted between the two groups and the degree of ischemic brain injury. The results suggested that the functional status of Th17/Treg cells was imbalanced following cerebral ischemia.
Regulated-on-activation, normal T cell expressed and secreted (also called RANTES, CCL5 or R/C) is a chemotactic cytokine that plays a key role in recruiting immune cells to inflammatory sites. R/C is involved in the pathogenesis of many systemic immune-mediated diseases (SIDs) and is upregulated in fatty-degenerative osteolysis jawbone (FDOJ) cavitations. Surgical cleaning of degenerative areas reduces the source of chronic R/C but might not be sufficient to reestablish the altered immunological patterns. The aim of the present study was to collect clinical data from patients suffering from SIDs who underwent dental surgery of FDOJ areas (n=46), by measuring R/C serum levels at the first visit (V0) prior to surgery, and at the second visit (V1). The majority of patients (n=41) were treated one month with ultra-low dose RANTES (27CH), a medicine used in micro-immunotherapy, while five patients were not. Mean and standard deviation of R/C serum levels at V0 in treated and untreated patients were respectively 48.5±25.8ng/ml and 42.48±22.22ng/ml. Untreated patients had a tendency towards higher R/C levels at V1 (68.36±30.7ng/ml; p=0.062), while an opposite tendency was observed in treated patients (40.9±20.3ng/ml; p=0.129). Investigators observed that a cut-off set at 40ng/ml at V0 seemed to be predictive of the efficacy of the dental surgery/treatment (p=0.0013, n=26) and that gender could influence R/C levels and patient’s responsiveness. The Authors, being aware that this is a preliminary follow-up, wanted to lay the basis for forthcoming studies, in which a larger cohort of patients and well-defined inclusion/exclusion criteria will be established.
The valuable role of selenium in mitigation of oxidative stress and heavy metal toxicity is well-known. Thus, the aim of the current study on broiler chickens was to examine whether nano elemental selenium (Nano-Se) supplementation can reduce the effects of chromium VI ($K_2Cr_2O_7$) toxicity. For this purpose, a total of 150, one-day-old broiler chickens were allotted to five groups with three replicates: control group (standard diet), poisoned group ($K_2Cr_2O_7$ via drinking water), protection group ($K_2Cr_2O_7$ + Nano-Se), cure group ($K_2Cr_2O_7$ for initial 2 weeks and then Nano-Se), and prevention group (opposite to the cure group). The broilers were detected by the activities of marker enzymes and oxidative stress markers including, aspartate aminotransferase (AST), alanine transaminase (ALT), gamma-glutamyl transferase (GGT) and superoxide dismutase (SOD), glutathione peroxidase (GSH-px), malondialdehyde (MDA), respectively. The $K_2Cr_2O_7$ administration caused histopathological damage in the liver of the chickens. Moreover, changes in serum biochemical indicators and oxidative stress parameters were also observed. Nano-Se supplementation increased the levels of GSH-px but reduced the activities of SOD, MDA, GGT, ALT and AST in the experimental groups ($P < 0.05$). Our results showed that Nano-Se plays a protective role by preventing the oxidative stress induced by the chromium VI in broiler chickens.
The temporomandibular joint disk (TMJD) lacks blood vessels and is characterized by slow self-repair. Qualitative lesions in TMJD are difficult to repair. In this study, electrospun poly(lactic-co-glycolic acid) (PLGA) scaffolds were used to reconstruct temporomandibular joint discs by tissue engineering. Rabbit temporomandibular joint disc cells (TMJDCs) and rabbit synovium-derived mesenchymal stem cells (SMSCs) were co-cultured in 1:1 ratios. Cell sheets were induced by ascorbic acid incubated with electrospun PLGA scaffolds for 14 days in the presence (10 ng/ml in culture medium) or absence of TGF-β3. Dimethylmethylen Blue Assay (DMMB) was used to determine the content of glycosaminoglycans in the extracellular matrix. The expression of Col1a1, Col2a1, Sox-9 and Runx-2 was quantified by RT-PCR, and the expression of type II collagen was observed by immunofluorescent staining. After 14 days of cultivation, the electrospun PLGA scaffold-loaded cell sheets could form an articular disc tissue with certain morphological characteristics. The expression of chondrogenic-related genes (Col2a1, Sox-9) and the secretion of extracellular matrix (GAG, type II collagen) in the co-culture group were close to those in the TMJDC group alone. The results suggest that PLGA electrospun scaffold-loaded co-cultured cell membrane could be used in the tissue engineering reconstruction of the temporomandibular joint disc.
The relationship between IGF-2, IGFBP-2, and IGFBP-3 levels in patients suffering from prediabetes

H. Ismayilnejadteymurabadi and D. Konukoglu

Istanbul University, Cerrahpasa Medical School, Department of Biochemistry, Istanbul, Turkey

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Many studies have shown that intervention in the early stages of diabetes may have a pivotal role in reducing the risk of cardiovascular diseases. This study was designed to assess possible relationships between insulin-like growth factor 2 (IGF-2), insulin-like growth factor binding proteins 2 and 3 (IGFBP-2, IGFBP-3) and prediabetes. A total of sixty clinically ascertained prediabetes cases and twenty-five healthy controls were included. Serum IGF-2 and binding proteins were estimated using commercially available ELISA kit. All groups had a positive correlation between all serum parameters. Multinomial logistic regression showed that all the study parameters directly affected each other. The results could not prove any correlation between IGF-2 and its binding proteins during prediabetes stage. Further assessments of these factors in larger groups of males and females in diabetic individuals could be useful to support our hypothesis that these factors change only in diabetes mellitus.
THE ROLE OF OSTEOPONTIN AND ITS RECEPTOR IN MENINGIOMA DEVELOPMENT AND PROGRESSION

HZ. LI, HD. GONG, C. WANG and JK. LI

Department of Neurosurgery, Affiliated HongQi Hospital of MuDanJiang Medical University, Mudanjiang, China

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Meningiomas are common in intracranial tumors, the majority of which are benign with slow growth and low recurrence rate. The aim of the present study was to assess the role of osteopontin and its receptor CD44 (Cluster of differentiation -44) in meningioma development and progression. A total of 2 groups were included, namely an experimental group with 54 meningioma patients and a control group with 30 patients with internal and external decompression. The disease group included subjects, from whom meningioma tissue specimens were collected during surgery for tumor excision, whereas the control group included subjects who were subjected to scalp laceration and provided normal meninx tissues. The expression of osteopontin and CD44 was determined by immunohistochemistry. Osteopontin expression was negative in normal meninx, and its expression was increased in meningioma tissues (P<0.05). The positive expression of osteopontin increased according to the histological grade of meningioma (r=0.417, P<0.001). A highly significant difference was noted between non-invasive and invasive meningiomas (P<0.001). The positive expression of CD44 correlated with the grade of meningioma and its invasiveness (P<0.05), although it exhibited no correlation with the degree of peritumoral edema (r=0.033, P>0.05). The increased expressions of osteopontin and CD44 were observed in all grades of meningioma, and correlated with its development (r=0.961, P<0.001). Osteopontin and CD44 play important roles in the development and progression of meningioma and can be used as prognostic markers for tumor recurrence and progression as well as therapeutic targets for the development of new drugs.
THE IMPLICATION OF DIABETES METABOLOMICS IN THE EARLY DIAGNOSIS AND PATHOGENESIS OF PANCREATIC CANCER

YB. LOU, FX. FAN, YC. MU and X. DONG

Department of General Surgery, The fourth Affiliated Hospital, School of Medicine, Zhejiang University, Yiwu, Zhejiang Province, China

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The aim of this study was to analyze metabolite differences in pancreatic cancer and diabetic patients, to better diagnose these diseases. Gas chromatography-mass spectrometry was used to evaluate the metabolomic differences in blood samples of 50 pancreatic patients, 50 diabetic patients and 50 healthy people. Metabonomic data was analyzed with Primary component analysis and discriminant analysis. The results show that pancreatic cancer patients, diabetic patients and healthy people can have significantly distinct metabolite profiles. Upregulated metabolites in the serum of the diabetic group included sugars (glucose, fructose), cholesterol, tyrosine and phosphoric acid and other substances, and down-regulation was observed in lactic acid, glycine, alanine, glutamine, proline, citric acid and other substances. It is indicated that identification of the most common changes in specific markers between the two diseases, can provide a new perspective and experimental basis for a better understanding of the metabolic differences and the pathogenesis of the two diseases in future. The present study sheds new light on the diagnosis of pancreatic cancer and diabetes.
HOUSE DUST MITE SUBLINGUAL-SWALLOW IMMUNOTHERAPY IN PERENNIAL RHINITIS: A DOUBLE-BLIND, PLACEBO-CONTROLLED IRANIAN STUDY

R.F. HOSEINI¹, F. JABBARI¹, A. REZAAE², H. RAFAFPANAH², H. YOUSEFZADEH³, N. ARIAEE¹ and H. SADRI³

¹Allergy Research Center, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; ²Immunology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran; ³Department of Allergy and Clinical Immunology, Shahid Bahonar Hospital, Alborz University of Medical Sciences, Karaj, Iran

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Sensitivity to house dust mite allergens in the development of allergic rhinitis has a key role. In this study, the clinical and immunological effects of high dose Dermatophagoides farinae sublingual immunotherapy (SLIT) versus placebo were compared. Forty poly-sensitized patients, ages 6-33 years, with allergic rhinitis and positive allergic reaction to the mites were enrolled in the study. Twenty-one patients were placed in the SLIT group and 19 in the placebo group. Expression levels of IL-10, TGF-β, FOXP3 and IL-17 were measured by using real-time PCR before and after the administration of sublingual immunotherapy. Clinical efficacy was estimated by the reduction rate of symptom/medication scores in the SLIT group compared with placebo treatment. After 6 months of SLIT, TGF-β expression levels were increased compared to pretreatment (P < 0.05). SLIT with D. farinae extract is an effective treatment for poly-sensitized patients with allergic rhinitis. TGF-β mediated T-cell suppression may be an important mechanism in the first 6 months of SLIT.
FK228 RECOVERS THIRAM-INDUCED TIBIAL DYSCHONDROPLASIA IN CHICKEN VIA HYPOXIA INDUCIBLE FACTOR-1α

M.K. IQBAL¹, F. NABI¹, M.U. REHMAN¹, K. MEHMOOD¹², S. HUANG¹, H. ZHANG¹, L. ZHANG¹, M. IQBAL¹ and J. LI¹³

¹Department of Clinical Veterinary Medicine, College of Veterinary Medicine, Huazhong Agricultural University, Wuhan, PR China; ²University College of Veterinary and Animal Sciences, Islamia University of Bahawalpur, Pakistan; ³College of Animal Husbandry and Veterinary Medicine, Tibet Agricultural and Animal Husbandry University, Linzhi, Tibet, PR China

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Tibial dyschondroplasia (TD) is a disease of many avian species characterized by an enlarged and avascular lesion in the proximal tibiotarsal bone. The aim of present study was to evaluate the effects of hypoxia-inducible factor-1α (HIF-1α) inhibition on thiram–induced TD using synthetic medicine FK228 and the association between HIF-1α and heat-shock protein 90 (Hsp90). One hundred and fifty broiler chicks were equally divided into 3 groups: control; thiram fed; and FK228 treatment. Expressions of HIF-1α and Hsp90 genes were analyzed by real-time quantitative polymerase chain reaction (RT-qPCR) on day 10 and 14 post-hatch. Western blot analysis of HIF-1α and Hsp90 gene was performed to measure the protein levels at the end of the experiment. Results showed that HIF-1α and Hsp90 levels were significantly (P<0.05) up-regulated in the thiram group as compared to the control group. Meanwhile, FK228 (HIF-1α inhibitor) significantly (P<0.05) down-regulated the mRNA and protein levels of HIF-1α and Hsp90, restored the size of growth plate and diminished lameness. In conclusion, HIF-1α and Hsp90 play an important role in the formation of avascular growth plate and there is a direct relationship between HIF-1α and Hsp90 for the progression of TD pathogenesis. Therefore, HIF-1α may prevent and control TD in broiler chickens.
EYES IN PITUITARY DISORDERS

Y. CHEN, Z-H. LIU, Z-H. LIN and X-Z. SHI

Department of Ophthalmology, The Affiliated Hospital to Changchun University of Chinese Medicine, Changchun, Jilin province, China

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The eye is a vital sense organ related to vision, conveying the underlying physical and mental state of wellbeing of an individual. Eye signs are often associated with endocrinal disorders such as exophthalmos in thyrotoxicosis. However, a thorough eye evaluation may lead to the identification of the early features that help in the diagnosis of various endocrine disorders. This is of vital importance especially in the central nervous system lesions. This is observed more in cases of pituitary mass lesions, which often present with functional hormonal alterations rather than visual symptoms. The definitive therapy has to be provided before it reaches the late stage of the disease which might lead to permanent visual disabilities. Hence, ophthalmologists, endocrinologists, neuro-radiologists and neurosurgeons need to intervene with combined efforts. In this review, we highlight the eye signs in pituitary disorders, along with a brief description of uncommon ocular-pituitary syndromes.
**IN-VITRO ANTIBACTERIAL AND ANTIOXIDANT POTENTIAL OF WINGED PRICKLY ASH, GREEN TEA AND THYME**

I. HAFIZ¹, H.N. BHATTI¹, M.A. HANIF¹ and M. SHAHID²

¹Department of Chemistry, University of Agriculture, Faisalabad, Pakistan; ²Department of Biochemistry, University of Agriculture, Faisalabad, Pakistan

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Herbs and plants are mostly used as antimicrobials and antioxidants owing to the harmfulness and linked side-effects of synthetic chemical constituents. Plants and spices produce various metabolites with antibacterial and antioxidant potential. These metabolites are principally revealed as encouraging healing components or mediators which control ailments in human beings. The present study was aimed to characterize the extracts from selected medicinal plants through in-vitro activities. Winged prickly ash, green tea and thyme were selected and extracted through ethanol and methanol solutions. The extracts were assessed for antibacterial and antioxidant activities. The antibacterial potential of extracts showed the significant extent of the activity against *Bacillus subtilis* and *E. coli*. The maximum activity was noted in 80% methanolic fraction of *Thymus vulgaris* (15.20±0.64 mm) against *Bacillus subtilis*. Antioxidant potential exhibited the highest phenolic and flavonoid content in *Camellia sinensis*. The total phenolic content was significantly higher (1456.26±12.05 mg gallic acid) in 80% ethanolic fraction of *Camellia sinensis*. The flavonoid content in different plant extracts ranged from 8.17±2.02 to 376.29±7.11 mg/g. The radical scavenging DPPH assay also showed the significant antioxidant capacity of selected plants with the methanolic (50%) extract of *Camellia sinensis* found to be the most potent (78.95±7.12%). It was concluded that the alcoholic extracts of selected medicinal plants revealed the effective antibacterial and antioxidant activity, showing protective prospective against oxidative injury.
The global demand for good quality food indicates that consumers are more concerned about a particular diet associated with good health and lower risk for certain ailments. Mushrooms are widely used as healthy nutritious food. In the present study, the nutritional composition of four different *Pleurotus* sp. was determined. Prior to extraction, all the selected mushrooms were subjected for proximate composition analysis. The protein, fat, ash, total carbohydrate, fiber and energy contents were in the range of (16.07-25.15%), (0.64-2.02%), (2.1-9.14%), (65.66-82.47%), (6.21-54.12%) and (342.20-394.30Kcal/100g), respectively. The spectrophotometric analysis showed that the concentration of protein was in the range of 45.78-33.47 mg/g in all *Pleurotus* sp. High performance liquid chromatographic analysis of sugars showed six different mono and disaccharides in all the selected mushrooms. The fatty acid profile by gas chromatography-mass spectrometry revealed that the main fatty acids in selected mushrooms were present in the order linolic acid> oleic acid> palmitic acid. The results suggested that all the *Pleurotus* sp. could be considered as a rich source of nutrients.
A comparison of the individual genomes within a species demonstrates that structural variation, including copy number variation (CNV), is a major contributor to phenotypic diversity and evolutionary adaptation. CNVs lead to the under/over-expression of a gene, according to the changes in the gene dosage, which account for the development of a number of genomic disorders. Thus, the development of efficient, rapid and accurate CNV screening is of fundamental importance. We report a method that enables the simultaneous determination of the copy numbers of several different targets as well as the discrimination among highly similar/almost identical targets that differ by only one single nucleotide variant, which establishes their copy numbers. The PCR co-amplification and single-base extension technologies are used to identify the copy number of a target sequence relative to a reference sequence of known genomic copy number in a given sample. This efficient and accurate quantification platform was successfully used to quantify the copy numbers of the primary spinal muscular atrophy-determining gene, SMN1, and the disease modifier gene, SMN2. The reliability, low-cost and potential for high-throughput make our method suitable for screening large populations as well as for use as a tool in clinical settings for genetic diagnosis/prognosis.
This study aims to assess the value of transvaginal color Doppler sonography (TVCD) combined with colposcopy for diagnosis of early stage cervical cancer and precancerous lesions. From January 2015 to September 2016, one hundred patients, diagnosed as having early stage cervical cancer and precancerous lesions by histopathological study, were selected as the observation subjects. All patients were examined by TVCD and colposcopy, and the results were compared with histopathological findings. The diagnostic accuracy, sensitivity and specificity of TVCD alone, colposcopy alone, and TVCD combined with colposcopy in early stage of cervical cancer and precancerous lesion were compared. The sensitivity, specificity and accuracy of TVCD combined with colposcopy were significantly higher than that of TVCD (P < 0.05), and the sensitivity was significantly higher than that of colposcopy (P < 0.05). The high sensitivity, specificity and accuracy of TVCD combined with colposcopy on the diagnosis of invasive cervical carcinoma (ICC) and cervical intraepithelial neoplasia (CIN) can provide a scientific basis for its use in clinical diagnosis.
To study the effect of quality nursing on postoperative incision infection in urological patients, 200 subjects admitted to our hospital between June 2016 and June 2017 were included in this study and divided into a quality nursing group (group A) and a general nursing group (group B), 100 in each group. Blood loss, blood transfusion, hospital stay, incision healing, incision infection, and self-rating depression scale (SDS) scores in both groups were compared. It was found that the bleeding volume in group A was significantly less than that in group B, and there was significant difference between the two groups (P <0.05) while the difference in blood transfusion rate and hospital stay between the two groups was not significant (P> 0.05); the number of patients of level 1 healing in group A was larger than that of group B while the number of patients of level 2 and level 3 healing was smaller than that of group B, with significant differences (P <0.05); the number of infection cases in group A was significantly lower than that in group B, and the difference was significant (P <0.05); the SDS score of group A was lower than that of group B, with significant differences (P <0.05). Therefore, quality nursing had a certain effect on the infection of postoperative incision of urological patients, which had positive significance for incision healing. Reducing the effect of bacterial infections in operated patients is important for rapid healing and patient health. Using a long-lasting antibacterial can protect the patient and reduce the incidence of other infections.
Secondary injury of brain tissue following cerebral infarction exhibits a complicated pathogenesis that is attributed to the induction of apoptosis and inflammatory response. The present study aimed to investigate the polydatin neuroprotective effects and their mode of action in cerebral ischemic injury.

A total of 80 healthy adult male Sprague-Dawley rats were randomly divided into a Sham operated group, a permanent middle cerebral artery occlusion (MCAO) group, a Polydatin low dose group and a Polydatin high dose group. A total of 20 rats were used in each group. The right MCAO model of rats was established using the modified Longa suturing method. The animals in the intervention group were injected intraperitoneally with 12.5mg/kg and/or 50mg/kg of polydatin following infarction. The expression levels of p53 and Notch 1 were measured by immunohistochemical techniques. The degree of left limb hemiplegia in the MCAO group was different compared with that of the low and high dose group of polydatin. A total of 20 rats were used in each group. The right MCAO model of rats was established using the modified Longa suturing method. The animals in the intervention group were injected intraperitoneally with 12.5mg/kg and/or 50mg/kg of polydatin following infarction. The expression levels of p53 and Notch 1 were measured by immunohistochemical techniques. The degree of left limb hemiplegia in the MCAO group was different compared with that of the low and high dose group of polydatin. The score for the neurological function in the high-dose group of polydatin was lower than that in the MCAO group (High vs MCAO: 2.4±0.31 vs 3.9±0.23, P < 0.05). The results indicated that high dose polydatin could reduce brain edema following cerebral infarction and improve the behavioral score in rats.
The study aimed to assess the effects and the further mechanism of action of dexmedetomidine with regard to stress reactions and cellular immune function of patients during the perioperative period following radical resection for rectal carcinoma. A total of 36 patients with rectal carcinoma were selected for radical resection under general anesthesia. The patients were divided into two groups, namely an experimental and a control group. In the experimental group (dexmedetomidine group) 1 µg/kg/bw dexmedetomidine was injected intravenously 10 min prior to the induction of general anesthesia, and then infusion was carried out at a rate of 0.2 µg·kg$^{-1}$·h$^{-1}$ for 30 min prior to the end of surgery. With regard to the control group, the same amount of normal saline (NS) was infused with the same method as the experimental group. Controlled intravenous analgesia was conducted following surgery to all of the patients. Regarding the effect of dexmedetomidine on the reaction of stress, a decrease of VAS scores was noted in the experimental group following extubation compared with the control group ($P<0.05$). Furthermore, a significant decrease in the consumption of morphine in the first 24 h was observed that was accompanied by a decrease of plasma cortisol levels at 6 and 24 h following surgery compared with the control group. The levels of IFN-γ/IL-10 in the experimental group were lower than those of the control group ($P<0.05$). The percentages of CD8+ and CD4+/CD8+ cells in the experimental group were increased compared with those of the control group ($P<0.05$). By infusing dexmedetomidine continuously, stress reactions during the perioperative period were significantly decreased, whereas the analgesic effects of opioid were increased.
Glioma is the most common primary tumor in the brain, accounting for about 40~50% of intracranial primary tumors. Most chemotherapeutic drugs have difficulty in penetrating the blood-brain barrier, and their clinical applications are greatly limited. We evaluated the effects of methylmercury-L-cysteine (MeHg-L-cys) and methylmercury chloride (MMC) on apoptosis of C6 glioma cells. L-type amino acid transporter (LAT1) was used to investigate the targeted transport function and cytotoxicity of MeHg-L-cys in glioma. MeHg-L-cys enhanced the ability of targeting glioma cells and reduced the adverse reactions to normal brain tissues. Therefore, it is significantly important to develop new anti-glioma drugs targeting the blood-brain barrier.
This study aimed to investigate the effectiveness of perioperative nursing intervention on patients undergoing laparoscopic gastric stromal tumor resection. Sixty patients with gastric stromal tumor were selected from our hospital and evenly divided into group A and group B. Patients in both groups underwent laparoscopic resection. Patients in group A were given conventional nursing intervention before and after surgery, while those in group B were given comprehensive nursing intervention. Various indicators were compared between the two groups. The amount of bleeding of group B was less than that of group A, and the first anal exsufflation of group B was also earlier than that of group A; the differences had statistical significance (p < 0.05). Patients in group B felt less pain than patients in group A; except for 72 h after surgery, difference of pain degree between group A and B had statistical significance in other periods (p < 0.05); the number of cases with complications and categories of complications of group B were less than those of group A, and the difference had statistical significance (p < 0.05). The efficacy satisfaction of group B was also higher than that of group A, and the difference was statistically significant (p < 0.05). Perioperative nursing intervention is beneficial and positive and has bright development prospects.
THE ROLE OF SUBCUTANEOUS ADIPOSE TISSUE IN PSORIASIS

I.L. KRUGLIKOV¹ and U. WOLLINA²

¹Wellcomet GmbH, Karlsruhe, Germany; ²Städtisches Klinikum Dresden, Academic Teaching Hospital of the Technical University of Dresden, Germany

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It is widely accepted that obesity is a systemic comorbidity factor in psoriasis. At the same time, there is rapidly growing evidence that the adipose tissue is not only systemically but also locally involved in the pathophysiology of psoriasis and in response to successful anti-psoriatic treatment.

Mailing address:
Prof. Uwe Wollina, MD,
Department of Dermatology and Allergology,
Städtisches Klinikum Dresden,
Academic Teaching Hospital, Technical University of Dresden,
Friedrichstrasse 41, 01067 Dresden, Germany
Tel.: +49 351 4801685 - Fax: +49 351 4801219,
e-mail: wollina-uw@khdf.de
MALNUTRITION IS PREVALENT IN PATIENTS WITH CARDIORENAL SYNDROME AND NEGATIVELY INFLUENCES CLINICAL OUTCOME

A. GIGANTE¹, E. ROSATO¹, B. BARBANO¹, F. DI MARIO¹, G. DI LAZZARO-GIRALDI¹, M.L. GASPERINI¹, R. POFF² and A. LA VIANO¹

¹Department of Clinical Medicine, Sapienza University, Rome, Italy; ²Department of Experimental Medicine, Sapienza University, Rome, Italy

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Cardiorenal syndrome (CRS) describes the concurrent failure of cardiac and renal function, each influencing the other. Malnutrition and cachexia frequently develop in patients with heart failure or kidney failure. However, no information is currently available on the prevalence of malnutrition in CRS patients. We studied CRS patients admitted to an internal medicine ward during a 5-month period and evaluated their clinical characteristics and nutritional status. Malnutrition risk was assessed by using the validated screening tool NRS-2002 whilst body composition was assessed by bioimpedance analysis and muscle function was measured by handgrip (HG) strength. Cardiac mass was also recorded. Length of stay, hospital readmission and 6-month mortality were registered. During the study period, 22 CRS patients were studied. Twenty patients were diagnosed with either CRS type 1 or CRS type 5. In CRS patients, fat-free mass showed a trend toward representing a protective factor for 6-month mortality (OR=0.904; p=0.06). Also, fat-free mass correlated with HG strength and cardiac ejection fraction. Malnutrition risk was diagnosed in 45% of the patients, whereas 8 patients met the definition of cachexia. Even without statistical significance, CRS patients with malnutrition had lower BMI (Body Mass Index) (p=0.038) and fat-free mass (p= n.s.). However, CRS malnutrition was associated to higher 6-month mortality (p= 0.05), and appears to negatively influence the outcome in CRS (OR= 9; p= 0.06). Our results show that malnutrition is prevalent in CRS patients and influences the clinical outcome. The assessment of nutritional status, and particularly body composition, should be implemented in daily practice of patients with CRS.
OMALIZUMAB A NEW PROSPECTIVE: A NASAL POLYPOSIS

C. CAVALIERE¹, E. BEGVARFAJ², F. FRATI³ and S. MASIERI²

¹Department of Oral and Maxillofacial Sciences, Sapienza University, Rome, Italy; ²Department of Sense Organs, Sapienza University, Rome, Italy; ³Pediatric Clinic, Department of Surgical and Biomedical Sciences, University of Perugia, Perugia, Italy

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Omalizumab, a monoclonal antibody against IgE, may be effective on nasal polyps, but its use is not currently authorized to treat that disease. We report the cases of three patients who were given omalizumab for asthma after undergoing nasal surgical polypectomy. Although such procedure is frequently followed by polyp recurrence, none of the three patients developed this complication, and in one subject the regression of initial polyp return was registered after starting omalizumab. Our data support the hypothesis that omalizumab may be useful to treat nasal polyposis.
Skin and soft tissue reconstruction represents one of the most debated issues of plastic surgery. The advent of regenerative medicine has shown new pathways with the use of lipofilling and dermal regeneration templates. The aim of this study was to investigate the histological and clinical modifications occurring after lipofilling in the areas previously reconstructed with Integra® and an autologous thin dermal-epidermal graft. Histological and immunohistochemical analysis were performed on nine patients to compare skin before and after lipofilling. Pre- and post-operative examinations (POSAS, VAS scale) were carried out as well as taking clinical photographs. The authors detected an overall clinical and histological improvement in all cases. Data obtained from POSAS and VAS scale showed a statistically significant (p<0.05) improvement concerning all variables investigated before surgery. The biopsies revealed qualitative modifications with hematoxylin-eosin and Masson trichrome stain. Immunohistochemistry with CD31 antibody also demonstrated quantitative changes with an increased number of vessels. The photographs enabled to compare the clinical situation before and after lipofilling with better aesthetic outcomes. Lipofilling gave good functional and aesthetic results in the areas treated with Integra® and autologous thin dermal-epidermal grafts.
An early double case of acute Ophthalmia neonatorum in 3-day-old twins is reported. Culture of eye swabs showed a wide bacterial polymorphism, in which common bacteria, such as Klebsiella pneumoniae, Streptococcus pneumoniae, Corynebacterium ulcerans and other Enterobacteriaceae, coexisted with atypical Mycoplasmataceae and Chlamydiaceae from resident cervical-vaginal maternal microbiota. The neonates were in an apparently healthy state, but showed red eyes with abundant greenish-yellow secretion, mild chemosis and lid edema. The maternal cervical-vaginal ecosystem resulted differently positive to the same common cultivable, atypical bacteria culturally and molecularly determined. This suggested a direct maternal-foetal transmission or a further foetal contamination before birth. An extended culture analysis for common bacteria to atypical ones was decisive to describe the involvement of Mycoplasmas (M. hominis and U. urealyticum) within the scenario of the Ophthalmia neonatorum in a Caucasian couple. The introduction of a routine PCR molecular analysis for Chlamydiaceae and N. gonorrhoeae allowed to establish which of these were present at birth, and contributed to determine the correct laboratory diagnosis and to define an adequate therapeutic protocol obtaining a complete resolution after one year for culture and atypical bacteria controls. This study suggests to improve the quality of laboratory diagnosis as unavoidable support to a correct clinical diagnosis and therapy, in a standardized modality both for swabbing and scraping, to check the new-born microbial programming starting in uterus, overtaking the “cultural age” to the “molecular age”, and to revise the WHO guidelines of “SAFE Strategy” for trachoma eye disease, transforming it into “SAFES Strategy” where the “S” letter is the acronym of “Sexual ecosystem and behavioural valuation/education”.

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EXTRACORPOREAL SHOCKWAVE THERAPY ON MUSCLE TISSUE: THE EFFECTS ON HEALTHY ATHLETES


1Orthopedics Section, Department of Medical Sciences of Basis, Neurosciences and Organs of Sense, Faculty of Medicine and Surgery, University of Study of Bari, General Hospital, Bari, Italy; 2Course of Motor and Sports Sciences, Department of Medical Sciences of Basis, Neurosciences and Organs of Sense, Faculty of Medicine and Surgery, University of Study of Bari, Bari, Italy; 3Physical Medicine and Rehabilitation Section, Department of Medical Sciences of Basis, Neurosciences and Organs of Sense, Faculty of Medicine and Surgery, University of Study of Bari, General Hospital, Bari, Italy; 4Centro Polivalente di Riabilitazione Frangi, Segesta-Korian, Acquaviva delle Fonti, Bari, Italy; 5Department of Biomedical Sciences and Human Oncology, Faculty of Medicine and Surgery, University of Study of Bari, General Hospital, Bari, Italy

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The aim of this study is to investigate the effects of extracorporeal shock wave therapy (ESWT) on muscle rheological and functional properties in a population of young athletes. Thirty-two football and basketball players were recruited and randomized into two groups. The athletes underwent three sessions of therapy administered every five days to the thigh muscles. The treatment consisted of ESWT (electromagnetic generator, Energy Flux Density=0.03 mJ/mm2) or a placebo treatment bilaterally on the quadriceps and femoral bicep muscles. Monitoring was carried out at recruitment (T0), at the end of treatment (15 days, T1) and at 30 days (T2) with myometric evaluation (measuring elasticity, stiffness and muscular tone) and electromiography exam (recording the Motor Unit Amplitude Potential values). The results showed a significant increase in the treated athletes in the elasticity (lateral vastus muscle, p=0.007), in muscular tone (femoral rectus, p=0.031) and in muscular recruitment (the lateral vastus, p<0.005; medial vastus muscle, p=0.055). These results could represent a translational interpretation of the known biological effect on connective tissue: an increase in blood flow, oxygenation, metabolic process activation and proliferative effect. The effects found may represent the justification for verifying the usefulness of using of shockwave therapy to reduce muscular fatigue and improve performance during the sport season.