

EDITORIAL

IMPACT OF IL-9 AND IL-33 IN MAST CELL

G. SABATINO¹, M. NICOLETTI², G. NERI³, A. SAGGINI⁴, M. ROSATI⁵, F. CONTI⁵,
E. CIANCHETTI⁶, E. TONIATO⁷, M. FULCHERI⁸, A. CARAFFA⁹, P. ANTINOLFI⁹,
S. FRYDAS¹⁰, F. PANDOLFI¹¹, G. POTALIVO⁹, R. GALZIO¹², P. CONTI⁷
and T.C. THEOHARIDES¹³.

¹Neonatology Division, University of Chieti, Italy; ²Department of Neurosciences and Imaging, University of Chieti, Italy; ³ENT Division, University of Chieti, Italy; ⁴Dermatology Department, University Tor Vergata, Rome, Italy; ⁵Gynecology Division, Santo Spirito Hospital, Pescara, Italy; ⁶Department of Surgery, Ortona ASL Hospital, Ortona, Italy; ⁷Immunology Division, University of Chieti-Pescara, Italy; ⁸Department of Psychology, University of Chieti-Pescara, Italy; ⁹Orthopedics Division, University of Perugia, Perugia, Italy; ¹⁰Parasitology Division, School of Veterinary Medicine, Aristotle University of Thessaloniki, Greece; ¹¹Department of Medicine, Catholic University of Rome, Rome, Italy; ¹²Department of Health Sciences, University of L'Aquila, Italy; ¹³Department of Physiology and Pharmacology, Tufts University School of Medicine, New England Medical Center, Boston, MA, USA

Received August 3, 2012 – Accepted October 10, 2012

Cytokines serve as chemical communicators from one cell to another and mostly of them have pro-inflammatory activity. Mast cells have been recognised as important mediators of the pathogenesis of allergy and inflammation, suggesting a role for IL-33-mediated mast cell activation. IL-33 was recently identified as a ligand for the orphan IL-1 family receptor T1/ST2 and is mainly expressed by mast cells, fibroblasts, epithelial cells, and endothelial cells, particularly in high endothelial venules. IL-33 is a potent inducer of pro-inflammatory cytokines such as IL-1, IL-6, IL-13 and TNF, and chemokines (MCP-1), by mast cells. Substance P is capable to induce VEGF from mast cells, and IL-33, the newest pro-inflammatory member of the IL-1 cytokine family, augments the effect of SP in VEGF transcription and translation protein. IL-9 is a pleiotropic and is expressed by multiple T helper (TH) cell subsets. IL-9 promotes the expression of mast cell pro-inflammatory cytokines in vitro and is involved in Th2 responses. This article focuses on recent developments of mast cells, IL-9 and IL-33, and recent literature and investigations were reviewed.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

JANUS KINASE INHIBITION AS A POTENTIAL STRATEGY FOR THE TREATMENT OF PSORIASIS: STATE OF THE ART AND FUTURE PERSPECTIVES

N. CASSANO and G.A. VENA

*Unit of Dermatology and Venereology, Department of Biomedical Sciences and Human Oncology,
University of Bari, Italy*

Received April 20, 2012 – Accepted September 21, 2012

Research is focusing the attention on drugs acting on intracellular signaling as a possible strategy for various malignancies and autoimmune disorders, as well as prevention of transplant rejection. In such a context, an intriguing therapeutic target appears to be the signaling pathway mediated by Janus kinases (JAK)/signal transducers and activators of transcription (STAT) protein family. Several companies are developing and evaluating JAK inhibitors for immune-mediated disorders, including psoriasis. Among these drugs, ruxolitinib and especially tofacitinib have reached more advanced phases of clinical and experimental development. This review discusses the potential role of JAK inhibition in the treatment of psoriasis and presents the preliminary data regarding the clinical development of JAK inhibitors in this disease.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

PREVALENCE OF IL-1 β +3954 AND IL-1 α -889 POLYMORPHISMS IN THE LEBANESE POPULATION AND ITS ASSOCIATION WITH THE SEVERITY OF ADULT CHRONIC PERIODONTITIS

G. TAWIL¹, F.A. AKL¹, M.F. DAGHER¹, W. KARAM², I. ABDALLAH HAJJ HUSSEIN³,
A. LEONE⁴ and A.R. JURJUS³

¹Department of Periodontology, Saint-Joseph University, Beirut-Lebanon; ²Department of Biology-Lebanese University, Hadath-Lebanon; ³Department of Anatomy, Cell Biology, and Physiology, American University of Beirut-Lebanon; ⁴Sezione di Istologia ed Embriologia, BioNec, Facoltà di Medicina e Chirurgia, Palermo, Italy

Received February 16, 2012 - Accepted September 4, 2012

Pro-inflammatory cytokines, i.e., IL-1 mediate the inflammatory response and are genetically regulated in periodontal diseases. Strong association was found between the composite genotype allele 2 of IL-1 β +3954 and IL-1 α -889 and severe chronic periodontitis. The aim of this study is to determine the prevalence of IL-1 β +3954 and IL-1 α -889 polymorphism in a group of Lebanese individuals of homogeneous ethnicity and the possible association between genotype positive individuals and the severity of periodontal disease. One hundred and fifty-seven patients aged 53.29 \pm 13.13 years participated in the study. Subjects were classified as follows: 1) healthy subjects with no attachment loss >1mm and no clinical signs of gingival or periodontal inflammation; 2) diseased subjects with mild periodontitis (less than 15% of global periodontal bone loss); 3) subjects with moderate periodontitis (less than 4 interproximal sites with bone loss = or >50% and mean bone loss between 15 and 30%); 4) subjects with severe periodontitis (more than 7 interproximal sites with >50% bone loss and mean bone loss >35%). Blood samples were taken and analyzed for polymorphism in the IL-1 α gene at position +4845 and in the IL-1 β gene at position +3953. Statistical analysis was performed using *chi*-square test, Fisher Exact test, and ANOVA followed by Bonferroni multiple comparisons. The prevalence of genotype-positive subjects was 52.3% in the healthy control group and 42 % in the diseased group. Positive genotype heterozygous of allele 1 and 2 for IL-1 β +3954 and IL-1 α -889 did not represent in this study a major risk for chronic periodontitis ($p=0.590$). Only subjects homozygous for allele2 of the IL-1 β +3954 and IL-1 α -889 were significantly more at risk for severe periodontitis with OR of 51.42.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

CLINICAL ANALYSIS OF SYSTEMIC AND ADIPOSE TISSUE LEVELS OF SELECTED HORMONES/ADIPOKINES AND STROMAL-DERIVED FACTOR-1

W. BŁOGOWSKI¹, K. SERWIN², M. BUDKOWSKA³, D. SAŁATA³, B. DOŁĘGOWSKA³,
M.ŁOKAJ⁴, P. PROWANS⁴ and T. STARZYŃSKA¹

¹Departments of Gastroenterology, ²Physiology, ³Medical Analytics, ⁴Plastic, Endocrine and General Surgery, Pomeranian Medical University, Szczecin, Poland

Received July 12, 2012 – Accepted October 29, 2012

Recent studies demonstrated that selected hormones/adipokines may be involved into the regulation of bone metabolism and bone marrow-derived hematopoietic stem/progenitor cells (HSPCs) mobilization in humans. Interestingly, in obese individuals significantly higher numbers of spontaneously circulating stem cells are also observed. Therefore in this study we comprehensively examined plasma and AT (subcutaneous and visceral/omental) levels of hormones/adipokines involved in HSPCs mobilization in lean, overweight and obese individuals as well as verified their potential associations with concentrations of HSPCs chemoattractant, stromal-derived factor-1 (SDF-1). Blood and AT samples (35 subcutaneous and 35 omental) were obtained from individuals undergoing elective surgery. Plasma and AT-derived interstitial fluid levels of resistin, visfatin, osteocalcin and SDF-1 were measured using ELISA. In our study obese patients had almost significantly ($P<0.06$) higher plasma visfatin and resistin levels as well as lower osteocalcin concentrations ($P<0.04$) than lean individuals. Osteocalcin and resistin concentrations were strongly associated with levels of SDF-1 and metalloproteinases (MMP 2 and 9). AT levels of all examined substances were significantly lower than the corresponding levels in the plasma (in all cases at least $P<0.05$), and depot-specific differences in the concentrations of these factors were found only in terms of osteocalcin and SDF-1. In addition, subcutaneous and visceral/omental concentrations of osteocalcin and visfatin, but not of resistin, were associated with values of such parameters as age, body mass or adiposity indexes (BMI and BAI, respectively) and/or waist-to-hip ratio (WHR). In summary, our study showed that in obese individuals the biochemical constellation of adipokines/hormones involved in the process of HSPCs mobilization resembles this observed during pharmacological HSPCs mobilization. Moreover, our study offers further indirect translational evidence for existence of a biochemical cross-talk between bone and AT metabolism (so called “bone-fat” axis) in humans.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

CATHELICIDIN LL-37 IN BRONCHOALVEOLAR LAVAGE AND EPITHELIAL LINING FLUIDS FROM COPD PATIENTS AND HEALTHY INDIVIDUALS

M. GOLEC¹, C. REICHEL², M. LEMIESZEK¹, B. MACKIEWICZ³, J. BUCZKOWSKI³,
J. SITKOWSKA⁴, C. SKÓRSKA¹, J. DUTKIEWICZ⁵, J. MILANOWSKI^{1,3}, R. ZIESCHE⁶

¹*Unit of Fibroproliferative Diseases, Institute of Rural Health, Lublin, Poland;* ²*Austrian Institute of Technology, Seibersdorf Laboratories, Seibersdorf, Austria;* ³*Department of Pneumonology, Oncology and Allergology, Medical University of Lublin, Lublin, Poland;*

⁴*Department of Occupational Biohazards, Institute of Rural Health, Lublin, Poland;* ⁵*Unit of Zoonotic Diseases, Institute of Rural Health, Lublin, Poland;* ⁶*Department of Internal Medicine II, Clinical Division of Pulmonary Medicine, Medical University of Vienna, Vienna, Austria.*

Received 11 November, 2011 – Accepted 24 September, 2012

Innate immunity is currently under scope of interest concerning its role in the development of chronic obstructive pulmonary disease (COPD). Antimicrobial peptides constitute a potent part of this fast response system. Here, we focus on the role of a specific antimicrobial peptide, the only human cathelicidin, the pleiotropic LL-37 peptide, in the development of COPD under clinical conditions. A cross-sectional study was conducted in groups of 43 patients with COPD (previously classified according to GOLD) and 12 healthy individuals. Bronchoalveolar lavage fluid (BALF) sampling, followed by LL-37 measurements by mass spectrometry combined with previous immunoaffinity purification, was performed. Based on urea levels, concentrations of LL-37 in epithelial lining fluid (ELF) were calculated. Additionally, an antimicrobial assay of growth inhibition of two bacterial species, often involved in COPD development mechanisms, by purchased LL-37 was conducted. Altogether, 55 BALF samples were analyzed. LL-37 levels were significantly higher in BALF from patients in early stages of COPD (GOLD I-II) compared to BALFs from healthy individuals. The same was true for ELF. Cathelicidin's concentration was significantly lower in both BALF and ELF from patients in advanced COPD (GOLD III-IV). The significantly elevated LL-37 levels both in BALF and ELF in patients with COPD at stage GOLD I-II together with reduced levels in advanced (COPD stage III-IV) further supports the innate immunity involvement in COPD pathology and suggests a profound change in non-specific immunity during the disease progression.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

PHENOTYPIC CHARACTERIZATION OF *EX VIVO* CD4⁺CD25^{HIGH}CD127^{LOW} IMMUNE REGULATORY T CELLS IN ALLERGIC ASTHMA: PATHOGENESIS RELEVANCE OF THEIR FOXP3, GITR, CTLA-4 AND FAS EXPRESSIONS

M. PIETRUCZUK¹, M. EUSEBIO¹, L. KRASZULA¹, M. KUPCZYK² and P. KUNA²

¹*Department of Laboratory Diagnostics, II Chair of Internal Medicine, Medical University of Lodz, Poland;* ²*Department of Internal Medicine, II Chair of Internal Medicine, Medical University of Lodz, Poland*

Received July 10, 2012 - Accepted September 27, 2012

Background: CD4⁺CD25^{high} regulatory T (Treg) cells are crucial for immune homeostasis and peripheral tolerance, but their relevance to allergic asthma has not been fully elucidated. **Objective:** To assess peripheral blood CD4⁺ T cells, and CD4⁺CD25^{high}CD127^{low} Treg cells expressing phenotypic markers (FoxP3, GITR, CTLA-4, and FAS) in allergic asthma subjects. **Materials and Methods:** Peripheral blood mononuclear cells were isolated from 60 allergic asthma (AA) subjects and 30 healthy controls (HC). We examined by flow cytometry, the proportion of CD4⁺ T cells and CD4⁺CD25^{high}CD127^{low} Treg cells as well as the expression of FoxP3, GITR, CTLA-4, and FAS by CD4⁺CD25^{high}CD127^{low} Treg cells. Moreover, FOXP3 mRNA expression was measured by quantitative real time polymerase chain reaction (real-time RT-PCR). **Results:** The absolute number of CD4⁺CD25^{high}CD127^{low} Treg cells and the percentages of CD4⁺CD25^{high}CD127^{low} Treg cells expressing one of the four selected markers were significantly lower in allergic asthma subjects compared with controls. We observed no significant decreased absolute CD4⁺ T cell count in the examined groups compared to the control group. Except for GITR, circulatory CD4⁺CD25^{high}CD127^{low} Treg cells of severe allergic asthma (SA) subjects showed significantly lower expressions of FoxP3, CTLA-4, and CD95 than did those isolated from mild to moderate asthma (MA) patients. There was no statistically significant difference in the level of mRNA FoxP3 expression in CD4⁺CD25⁺ Treg cells between allergic asthma subjects and healthy controls groups, and within the examined groups ($p > 0.05$). **Conclusions:** These findings suggest that allergic asthma and the use of glucocorticosteroids are associated with decreased absolute number of circulatory CD4⁺CD25^{high}CD127^{low} Treg cells and the decreased frequencies of CD4⁺CD25^{high}CD127^{low} Treg cells expressing one of the four selected markers.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

EFFECTS OF IL-17 ON ERYTHROID PROGENITORS GROWTH: INVOLVEMENT OF MAPKs AND GATA TRANSCRIPTION FACTORS

A. KRSTIĆ, J. KOCIĆ, V. ILIĆ, S. MOJSILOVIĆ, I. OKIĆ-ĐORĐEVIĆ,
D. TRIVANOVIĆ, J.F. SANTIBAÑEZ, G. JOVČIĆ and D. BUGARSKI

Institute for Medical Research, University of Belgrade, Belgrade, Serbia

Received September 15, 2011 – Accepted October 30, 2012

Interleukin-17 is Th17 cell cytokine implicated in regulation of hematopoiesis and inflammation. Besides promoting granulopoiesis, we have previously shown that IL-17 also affects erythropoiesis stimulating the development of early erythroid progenitors, BFU-E, but suppressing, at least partly via p38 MAPK, the growth of late stage erythroid progenitors, CFU-E. The aim of the present study was to investigate the involvement of other MAPKs, JNK and ERK1/2, as well as GATA transcription factors, in IL-17-mediated effects on murine bone marrow erythroid progenitors. Data obtained by use of specific MAPKs inhibitors indicated that MEK1/2-ERK1/2 MAPK signaling mediates IL-17-induced CFU-E inhibition, as well as that JNK and/or MEK1/2-ERK1/2 MAPKs activation underlies IL-17-induced stimulation of BFU-E growth. Furthermore, Western blot analyses demonstrated no effect on early hematopoiesis transcription factor, GATA-2, and enhanced expression level of erythroid-specific factor GATA-1 in murine bone marrow cells after IL-17 stimulation, which in light of previous reports that GATA-1 overexpression inhibits erythroid differentiation, could be related to IL-17-mediated inhibition of CFU-E growth. Although, no contribution for p38, JNK and ERK MAPKs in IL-17-induced GATA-1 expression was shown, data obtained using specific inhibitors pointed to the role of JNK and MEK1/2-ERK1/2 in GATA-1 downregulation. Overall, obtained data gave an insight into the mechanisms by which IL-17 exerts its effects on erythropoiesis, implying the involvement of JNK and ERK MAPKs, as well as GATA-1, in IL-17-regulated growth of erythroid progenitors.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

HYPOXIC VENTILATORY RESPONSE IN LIMITED IRON IN THE RAT

M. POKORSKI^{1,2} and J. ANTOSIEWICZ¹

¹Department of Respiratory Research, Medical Research Center, Polish Academy of Sciences, Warsaw, Poland; ²Department of Neuropsychology, Institute of Psychology, Opole University, Opole, Poland

Received July 9, 2012 – Accepted October 1, 2012

The study seeks to determine the role of iron in the ventilatory response to acute hypoxia in anesthetized, spontaneously breathing Wistar rats, using an experimental paradigm of chronic iron chelation. Since the hypoxic ventilatory response is generated by carotid body chemoreceptors, another objective of the study was to assess the hitherto unknown effects of iron chelation on carotid body ultrastructure. Minute ventilation and its tidal and frequency components' responses to acute 9% FiO₂ were measured with plethysmography before and after iron chelation with ciclopirox olamine (CPX, 20 mg/kg, i.p.) for 7 days. Transmission electron microscopy was employed to assess the ultrastructure of carotid body tissue. We found that CPX pretreatment significantly decreased both resting and peak hypoxic ventilation in a range of 20-25%. Iron chelation caused degenerative changes in carotid body parenchyma, particularly affecting the chemoreceptor cell ultrastructure, consisting of cytoplasmic vacuolization, formation of lysosomes and multivesicular bodies, and damage to mitochondria. We report herein that inhibition of ventilatory responsiveness in limited iron is explicable by iron's role in maintaining carotid body ultrastructural viability rather than by emulation of hypoxic HIF-1 α -mediated transduction pathway in chemoreceptor cells suggested by previous *in vitro* studies.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

EICOSAPENTAENOIC ACID MODULATES CYA-INDUCED PROINFLAMMATORY CYTOKINE OVER-EXPRESSION IN OSTEOBLASTIC CELLS *IN VITRO*

E. MUSACCHIO¹, G. PRIANTE², C. VALVASON², B. BAGGIO² and L. SARTORI¹

¹*Department of Medicine DIMED, Clinica Medica I, University of Padova;* ²*Department of Medicine DIMED, Nephrology Unit, University of Padova, Padova, Italy*

Received November 4, 2011 – Accepted August 1, 2012

Several adverse outcomes are reported in subjects undergoing long term Cyclosporin A (CyA) treatment. Severe osteopenia has been described in clinical and experimental reports, while beneficial effects of n-3 polyunsaturated fatty acids (PUFAs) on bone metabolism are recognized. In the present study we investigated the effects of n-3 versus n-6 PUFAs on osteoblastic cells treated with CyA, evaluating the expression of interleukin (IL)-1 β , interleukin-6 (IL-6), inducible nitric oxide synthase (iNOS), and cyclooxygenase-2 (COX-2) in two different experimental protocols and the production of IL-6, IL-1 β , and tumor necrosis factor α (TNF α) in cells challenged simultaneously with CyA and eicosapentaenoic acid (EPA) for 48h. IL-1 β and IL-6 up-regulation, induced by CyA, was counteracted by the addition of EPA in both protocols; on the contrary, arachidonic acid (AA) magnified CyA the effects. COX-2 and iNOS levels were not modified by CyA treatment. These *in vitro* results, that substantiate clinical reports of CyA-induced osteopenia, demonstrate a beneficial effect of EPA on CyA-altered cytokine profile, opening new perspectives in the non-pharmacological management of adverse outcomes in CyA-treated patients.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

CHANGES IN SERUM LEVELS OF TNF- α , IL-6, OPG, RANKL AND THEIR CORRELATION WITH RADIOGRAPHIC AND CLINICAL ASSESSMENT IN FRAGILITY FRACTURES AND HIGH ENERGY FRACTURES

M.G. GIGANTI¹, F. LIUNI¹, M. CELI¹, E. GASBARRA¹, R. ZENOBI²,
I. TRESOLDI¹, A. MODESTI¹, R. BEI¹ and U. TARANTINO¹

¹*Dept. of Clinical Sciences and Translational Medicine, University of Rome "Tor Vergata", Rome, Italy;* ²*Dept. of Experimental Medicine and Surgery, University of Rome "Tor Vergata", Rome, Italy*

Received February 24, 2012 – Accepted June 4, 2012

Stages of bone turnover during fracture repair can be assessed employing serum markers of osteoblastic and osteoclastic activity, inflammatory cytokines, clinical evaluation and imaging instruments. Our study compares the fracture healing process in fragility fractures and high energy fractures by evaluating serum changes of interleukin-6 (IL-6), tumor necrosis factor alpha (TNF- α), osteoprotegerin (OPG) and receptor activator of the nuclear factor- κ B ligand (RANKL) in combination with radiographic (Radiographic Union Scale for Tibial fractures, RUST) and clinical (Lower extremity measure, LEM) assessments. We enrolled 56 patients divided into four corresponding groups: group A with high energy trauma fracture (tibial/femoral shaft); group B with low energy trauma fracture (femoral fractures); healthy (control A) and osteoporotic subjects (control B). Blood samples were collected before surgery (T0) and after 10 weeks (T10). Serum concentrations of IL-6, TNF- α , RANKL and OPG were quantified using commercial enzyme-linked immunosorbent assay (ELISA) kits. Our results show that RANKL values are significantly higher at T10 than at T0 in low energy trauma fractures (group B). OPG is significantly lower in each control group than that of the respective fractured group and its concentration at T0 and at T10 is significantly lower in high than in low energy fractures. RANKL/OPG ratio is significantly higher in both controls than in fractured groups, and significantly increases after 10 weeks. IL-6 and TNF- α concentrations significantly decrease during fracture healing and are higher in high (group A) than in low energy fractures (group B). Significant differences were also found in both RUST score and LEM between groups A and B. Changes in TNF- α and IL-6 levels correlate with RUST and LEM in fragility and high energy fractures, while RANKL/OPG ratio is associated with these clinical parameters only in fragility fractures. These findings suggest that serum levels of IL-6, TNF- α , RANKL and OPG might be used to monitor the stages of fracture repair. Further studies will be needed to confirm the role of these cytokines in fracture repair.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

SILICA PARTICLE SIZE AND SHAPE: *IN VITRO* EFFECTS ON EXTRACELLULAR MATRIX METABOLISM AND VIABILITY OF HUMAN BRONCHIAL EPITHELIAL CELLS

M. BODO¹, C. LILLI¹, M. CALVITTI¹, E. ROSATI², G. LUCA¹, A. LUMARE³,
A. GAMBELUNGHE⁴, N. MURGIA⁴, G. MUZI⁴ and C. BELLUCCI¹

¹*Department of Experimental Medicine and Biochemical Sciences, University of Perugia, Perugia, Italy;* ²*Department of Clinical and Experimental Medicine, General Pathology and Immunology Section, University of Perugia, Perugia, Italy;* ³*Specialist in Occupational Medicine, University of Perugia, Perugia, Italy;* ⁴*Section of Occupational Medicine, Respiratory Diseases and Toxicology, University of Perugia, Perugia, Italy*

Received April 17 2012 – Accepted July 25, 2012

The first two authors contributed equally to this work

Crystal micro-morphology and dimension of silica particles could be responsible for the high prevalence of silicosis as recently found among goldsmiths. In the present study we investigated two samples of silica particles with different surface sizes and shapes for their capacity to induce changes in ECM component production. In addition we investigated if their different effects could be related to cytotoxicity and apoptotic effects. Human bronchial epithelial cells were cultured with or without a sample of Silica used for casting gold jewellery, named in our experiments Silica P or a commercial sample of Silica with different physical and chemical properties, named in our experiments Silica F. After 48 h of exposure PCR analysis determined levels of several matrix components. As induction of the apoptosis cascade, annexin assay, caspase 3 activity and cellular cytotoxicity by MTT assay were assayed. Silica F promoted fibronectin, MMP12, tenascin C and Integrins b5 gene expressions more than Silica P. Silica P stimulated more TGF β 1 and its TGF β R1 receptor than Silica F. Cytotoxic effects were induced by the two samples of Silica. On the contrary, no alteration in classic apoptotic marker protein expression was observed in presence of either Silica F or Silica P, suggesting silica particles affect ECM production and metalloproteases through a mechanism that does not involve apoptotic activation. Different Silica micromorphology and TGF β signal pathway are linked to lung fibrotic effects but the potential role Silica in apoptotic and toxic reaction remains to be ascertained.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

ASSOCIATION OF PLACENTAL INSULIN, TOTAL AND ACTIVATED INSULIN RECEPTOR CONTENTS, CORTISOL AND IL-6 CONCENTRATIONS WITH HUMAN BIRTH WEIGHT AND LENGTH: PILOT STUDY

A. SMERIERI, M. PETRAROLI, L. MONTANINI, C. SARTORI, S. BERNASCONI
and M.E. STREET

Department of Paediatrics, University Hospital of Parma, Parma, Italy

Received May 9, 2012 – Accepted August 29, 2012

We followed-up, from pregnancy to birth, a group of newborns both IUGR and AGA and we aimed at establishing placental biochemical determinants of birth weight and length. Insulin, total and activated insulin receptor contents (IR), cortisol and IL-6 placental concentrations were assayed in 23 IUGR and 37 AGA subjects at birth, and a multiple regression model was designed and applied to assess the significant biochemical determinants of birth size. IL-6 and activated insulin receptor content were significantly increased in IUGR, whereas insulin, total insulin receptor content, and cortisol placental concentrations were similar in IUGR and AGA. Placental cortisol concentration was found to be significantly and negatively related with both birth length (0.778, $P<0.001$) and weight (0.508, $P<0.008$). A negative effect of IL-6 placental concentration was found on birth length ($P<0.002$). For the first time we provide evidence of a negative association of placental cortisol and IL-6 concentrations on birth size.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

TREATMENT OF HUMAN CARTILAGE DEFECTS BY MEANS OF Nd:YAG LASER THERAPY

A. ZATI¹, G. DESANDO², C. CAVALLO³, R. BUDA⁴, S. GIANNINI⁴,
D. FORTUNA⁵, A. FACCHINI^{2,3,6} and B. GRIGOLO^{2,3}

¹SC Department of Rehabilitation and Functional Recovery; ²SC Laboratory of Immunorheumatology and Tissue Regeneration; ³SSD Laboratory RAMSES; ⁴SC II Orthopaedic and Traumatology Clinic, Rizzoli Orthopaedic Institute; Bologna, Italy; ⁵Photobiolab (El. En. S.p.A.) Calenzano Firenze Italy; ⁶Department of Internal Medicine and Gastroenterology; University of Bologna; Bologna, Italy

Received December 7, 2011 – Accepted June 6, 2012

Articular cartilage lesions represent a challenging problem for orthopaedic surgeons. The purpose of this study was to evaluate the effect of a new pulsed Nd:YAG High Intensity Laser Therapy on the regeneration of cartilage tissue in patients with traumatic lesions. Clinical, histological and immunohistochemical evaluations were performed. Ten patients affected by chondral lesions scheduled for ACI procedure, were enrolled into the study. During the chondrocyte expansion for ACI procedure, cartilage from five patients was treated by Nd:YAG High Intensity Laser Therapy (HILT group). No laser treatment was performed in the remaining patients, who were used as controls. Cartilage repair was assessed by clinicians using two different scores: Cartilage Repair Assessment (CRA) and Overall Repair Assessment (ORA). Cartilage biopsy specimens were harvested to perform histological and immunohistochemical analyses at T0 (before laser treatment) and T1 (at the end of the treatment). A significant decrease in cartilage depth was noticed in the HILT group at T1. Histological and immunohistochemical evaluations showed some regenerative processes in cartilaginous tissue in terms of high amount of proteoglycans, integration with adjacent articular cartilage and good cellular arrangement in the HILT group. By contrast, a not well organized cartilaginous tissue with various fibrous features in the control group at T0 and T1 was observed. In conclusion, the use of this new pulsed Nd:YAG HILT resulted promising in the treatment of moderate cartilage lesions markedly in the young patients.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

HUMAN DENTAL PULP CELL APOPTOSIS: IMMUNOHISTOCHEMICAL STUDY AFTER APPLYING ORTHODONTIC TRACTION

A. LEONE¹, A. ANGELOVA VOLPONI², C. CAMPANELLA³, C. GUARNOTTA⁴,
I. ABDALLAH HAJJ HUSSEIN⁵, F. CAPPELLO⁶, A. GERBINO⁷ and A. JURJUS⁸

¹*Department of Experimental Biomedicine and Neuroscience, Section of Histology and Embryology, University of Palermo, Italy;* ²*Department of Craniofacial Development and Stem cell Biology, Dental Institute, King's College, London-UK;* ³*Department of Experimental Biomedicine and Neuroscience, University of Palermo, Italy;* ⁴*Department of Science and Health Promotion, University of Palermo, Italy;* ⁵*Department of Anatomy, Cell Biology, and Physiology, American University of Beirut, Beirut Lebanon;* ⁶*Department of Experimental Biomedicine and Neuroscience, University of Palermo, Italy;* ⁷*Department of Experimental Biomedicine and Neuroscience, Section of Histology and Embryology, University of Palermo, Italy;* ⁸*Department of Anatomy, Cell Biology and Physiology, American University of Beirut, Beirut, Lebanon*

Received May 8, 2012 – Accepted September 7, 2012

The aim of this study was to compare human dental pulp stress and programmed cell death after 3 and 6 months of orthodontic treatments by assessing the degree of apoptosis and related proteins. Human dental pulps were collected from twenty young patients orthodontically treated by Straight Wire technique. Samples were fixed, paraffin-embedded and processed for histology and immunohistochemistry using anti-heat shock protein 60 kDa (Hsp60), -caspase 3, -caspase 9, and -PCNA antibodies, as well as TUNEL reactions. Moreover, we performed immunoprecipitation for Hsp60 and caspase 3, and for Hsp60 and caspase 9, from paraffin extracted tissues. Increased levels of both caspases and Hsp60 occurred in 6-months treated samples; at the same time, we found increased levels of proliferating cell nuclear antigen and terminal deoxynucleotidyl transferase dUTP nick end labeling positive cells. Immunoprecipitation showed that Hsp60 forms a complex with both Pro-caspase 3 and Caspase 3, and this may accelerate Pro-caspase 3 activation, especially in the 6-months treated group. On the contrary, no complex between Hsp60 and Pro-caspase 9 was detected. The orthodontic tractions may be a cause of stress, apoptosis and proliferation in pulp tissue. These results suggest the need of further studies about the effects of long term orthodontic treatments on the dental pulp.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

PLACENTAL CORTISOL AND CORD SERUM IGFBP-2 CONCENTRATIONS ARE IMPORTANT DETERMINANTS OF POSTNATAL WEIGHT GAIN

M.E. STREET¹, A. SMERIERI¹, M. PETRAROLI¹, S. CESARI¹, I. VIANI¹,
M. GARRUBBA¹, M. ROSSI² and S. BERNASCONI¹

¹*Department of Pediatrics, University Hospital of Parma, Italy;* ²*Department of Statistics, University of Parma, Italy*

There is a need to identify simple biochemical markers at birth that may predict subjects at risk of growth failure and metabolic complications in later life. Limited research to date has been performed on relationships of specific biochemical determinants at birth with postnatal weight gain and growth. We proposed to establish whether placental cortisol and IL-6 concentrations and cord serum IGF-II and IGFBP-2 concentrations influenced postnatal growth. We followed up from pregnancy 23 IUGR and 37 AGA subjects, and determined placental cortisol and IL-6 concentrations, and cord serum IGF-II, and IGFBP-2 concentrations at birth. We obtained height and weight measurements at 3, 6, 12, 24 months and 5 years of age in 20 IUGR and 15 AGA subjects of comparable gestational age. A multiple linear regression model was designed to establish the effect of the placental and cord serum peptides on postnatal linear growth and weight gain. All IUGR subjects had catch-up growth before 2 years of age. Placental cortisol concentration correlated positively with weight gain during the first 5 years of postnatal growth ($P < 0.05$). Subjects with the highest placental cortisol concentrations were those who showed a greater increase in weight. Cord serum IGFBP-2 concentrations correlated positively with weight gain throughout the 5 year observation period ($P: 0.003$). The subjects with the highest concentrations showed a greater weight gain. Placental cortisol and cord serum IGFBP-2 concentrations were related to postnatal weight gain, suggesting that the fetal environment has long-term effects on growth.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

VARIATION OF B-TYPE NATRIURETIC PEPTIDE CONCENTRATIONS AND INTRAUTERINE GROWTH RESTRICTION: MOTHER, FETUS AND NEWBORN

F. GAROFOLI¹, S. MANNARINO², L. MONTANARI³, R. CERBO⁴, C. TZIALLA⁴,
I. MAZZUCHELLI^{1,5}, M. ANGELINI¹, A.C. CODAZZI², M.E. MONGINI⁴,
P. MANZONI⁶, C. TINELLI⁷, A. SPINILLO³ and M. STRONATI⁴

¹Neonatal Immunology Laboratory, Neonatal Unit and Neonatal Intensive Care Unit, Maternal Infant Department, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy; ²Pediatric Cardiology, Maternal Infant Department, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy; ³University of Pavia, Department of Obstetrics and Gynecology, Maternal Infant Department, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy; ⁴Neonatal Unit and Neonatal Intensive Care Unit, Maternal, Infant Department, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy; ⁵Department of Internal Medicine and Therapeutics, University of Pavia, Italy; ⁶Neonatal Intensive Care Unit, Sant' Anna Hospital, Azienda Ospedaliera Regina Margherita Sant' Anna, Torino, Italy; ⁷Biometric Unit, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy

Received June 29, 2012 - Accepted October 2, 2012

To evaluate maternal, fetal, neonatal B-type natriuretic peptide (BNP) concentrations related to Intra Uterine Growth Restriction (IUGR). BNP concentrations in 43 IUGR and 35 healthy, Appropriate for Gestational Age (AGA) infants/paired mothers have been compared, from delivery/birth to first month of life. Maternal and IUGR cord BNP concentrations were coupled to fetal ultrasonography. Neonatal echocardiography was performed too. On delivery BNP was higher in all IUGR mothers, suffering or not from gestational hypertension, than in AGA (median 37.14 vs 11.1 pg/ml $p=0.002$). Maternal BNP was not associated to cord/neonatal BNP or fetal ultrasonographic parameters. Cord BNP was higher in IUGR than AGA newborns (median 23.9 vs 11.4 pg/ml $p=0.0007$) independently of gestational age, while varied with amniotic fluid ($p=0.0044$) and umbilical artery flowmetry ($p=0.0121$). Earlier drop of BNP on day 3 was reported in IUGR neonates ($p=0.0001$). Ventricular mass change/body weight varied positively in AGA newborns ($p<0.001$), while declined in IUGR ones ($p=0.003$). Carrying IUGR fetus is a stress factor resulting in high maternal BNP concentration. Altered fetal ultrasonographic parameters in IUGR newborns lead to higher BNP cord levels. A rapid BNP drop and probable ventricular mass adjustment of IUGR newborns may indicate earlier post-natal cardiovascular adaptation than AGA infants.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

CAN LATENT SYNERGISM OF INTESTINAL PATHOGENS BE RESPONSIBLE FOR INFLAMMAGING PROCESS CAUSING REITER'S SYNDROME IN A YOUNG PATIENT HLA-B₂₇ INFECTED BY ATYPICAL PATHOGENS? A HOLISTIC VIEW AND CLINICAL BIOCHEMICAL REINTERPRETATION

M. DEL BOCCIO¹, L. LOBEFALO¹, A. PENNELLI¹, E. TONIATO¹, S. MARTINOTTI¹,
R. TENAGLIA², G. NERI³, G. DEL BOCCIO¹ and P.E. GALLENGA¹

¹Department of Biomedical Sciences, Faculty of Medicine G. d'Annunzio University Chieti-Pescara, Chieti, Italy; ²Department of Medicine and Aging Science, Section of Urology, Faculty of Medicine, G. d'Annunzio University Chieti-Pescara, Chieti, Italy; ³Department of Neurosciences and Imaging, Faculty of Medicine G. d'Annunzio University Chieti-Pescara, Chieti, Italy.

Received July 16, 2012 – Accepted September 17, 2012

A case of a genetically HLA-B₂₇ patient fully investigated by molecular analyses, following a holistic vision and an anamnestic assessment of multi-site ecosystems is repeated. VDRL, Lupus anti-coagulant (LAC) and Widal-Wright (WWR), resulted positive. The antibodies (IgG/IgA anti-Ct) against chronic *Chlamydia trachomatis* inflammation were positive. In the context of all the enzymatic activities in reference range, the AMS and the ALP enzymatic activities showed an increasing trend and a time course augment depending respectively. Cultures, parasitological, digestibility tests and molecular analyses were then performed to investigate the different human ecosystems. Parasitological research and digestibility test were performed, resulting a latent chronic bowel inflammation, including certain enteroinvasive pathogens, such as, *Salmonella*, *Shigella*, *Yersinia* and *Campylobacter* (Enteric Pathogens Group, EPG) and *Escherichia Coli* pathogens (*Escherichia Coli* Pathogens Group, ECPG). The *Salmonella typhi*-DNA resulted positive, while 90% of the total microbic charge (TMC) was represented by *C. freundii* in culture analyses. Interpreting the VDRL positive test as early triggering of autoimmune disease, a few acute phase proteins as a *pauci-symptomatic* chronic phlogistic process, the amylase and alkaline phosphatase alterations as tissue markers of early intestinal inflammation, the Widal's reaction positivity together with the precocious clinical and faecal manifestations, this study suggests the prime triggering role of these atypical pathogens to cause a chronic low grade autoimmune response against the tissue/organ susceptible target, causing “*inflammaging*” phenomenon in young patient with chronic latent infection by *Salmonella typhi*, leading to Reiter's syndrome, in HLA-B₂₇ positive patient.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

LETTER TO THE EDITOR

**DOES HUMAN PAPILLOMA VIRUS PARTICIPATE IN COLORECTAL
CARCINOGENESIS**

M. SNIETURA¹, D. WANICZEK², E. NOWAKOWSKA-ZAJDEL³, W. PIGLOWSKI¹,
A. KOPEC¹ and M. MUC-WIERZGON³

¹Maria Skłodowska-Curie Memorial Cancer Center and Institute of Oncology, Gliwice Branch, Pathology Department, Gliwice, Poland; ²Chair and Department of General and Gastrointestinal Surgery, Silesian Medical University, Bytom, Poland; ³Department of Internal Diseases, Silesian Medical University, Bytom, Poland

Colorectal cancer is one of the most commonly diagnosed neoplasms still associated with relatively high mortality. Viral infections are often mentioned among the neoplasm transformation risk factors. Incidence of human papilloma virus (HPV), associated with high oncogenic risk, in the large intestine and the meaning of its presence in the colorectal carcinogenesis are still not clear. The aim of the study was to show a presence of HPV in specimens of adenomatous polyps and colorectal cancer using the Q-PCR method. Fifty patients (32 M/18W, mean age 62.8 years) were enrolled in the study, for whom tissue samples were obtained. Study material involved paraffin blocks derived from samples collected by flexible sigmoidoscopy from 10 polyps and 10 large intestine adenocarcinomas and 30 paraffin blocks with specimens of surgically removed large intestine adenocarcinomas. Presence of HPV genome was confirmed by quantitative PCR method using commercially available Abbott RealTime High Risk HPV test. The test is able to detect 14 most prevalent high oncogenic risk subtypes of human papilloma virus. Status of HPV DNA was successfully assessed in all 50 samples. No HPV DNA was discovered in any of the tested samples. Presence of high oncogenic risk HPV subtypes in large intestine adenoma and adenocarcinoma seems to be very rare, and its dominating role in the pathogenesis of colorectal cancer, even if possible, is unlikely.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

**DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF
INTEREST RELEVANT TO THIS ARTICLE.**

LETTER TO THE EDITOR

EFFECT OF MAGNESIUM IONS ON ETHANOL-INDUCED CHANGES IN THE POOL OF SATURATED, MONO- AND POLYUNSATURATED FATTY ACIDS IN ISOLATED RAT HEPATOCYTES

E. GROCHOWSKA-NIEDWOROK¹, B. CAŁYNIUK¹, M. MUC-WIERZGOŃ²
and E. NOWAKOWSKA-ZAJDEL²

¹*Department of Human Nutrition, Faculty of Public Health, Silesian Medical University, Zabrze, Poland;* ²*Department of Internal Diseases, Silesian Medical University, Bytom, Poland*

Received July 25, 2012 - Accepted September 26, 2012

The aim of the paper was the assessment of the effect of magnesium ions on ethanol-induced changes in the content of ester-bound fatty acids in isolated rat hepatocytes and their cell membranes. Hepatocytes were isolated by means of the enzymatic method of Selgen using collagenase. The number and viability of isolated rat hepatocytes, incubated for 5 hours in culture media (Hepatocyte Medium) with ethanol and MgCl₂ solutions with concentration amounting respectively to: 150 mM/dm³ of ethanol and/or 2 mM/dm³ of MgCl₂, 4 mM/dm³ of MgCl₂, were determined. Biochemical tests of hepatocytes were performed, consisting in the determination of the total content of ester-bound fatty acids in whole hepatocytes and their cell membranes after incubation. Confirmed normalising action of magnesium ions with respect to the effects induced in hepatocytes and their membranes by the presence of ethanol should be attributed to the important role of magnesium which it performs during reactions taking place with participation of ATP.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

LETTER TO THE EDITOR

COPPER-ZINC SUPEROXIDE DISMUTASE ACTIVITY IN DENTAL PULP AFTER DENTAL PREPARATION

G. VARVARA¹, V. PINCHI², S. CAPUTI¹, C. D'ARCANGELO¹,
A. SCARANO¹, B. SINJARI¹ and G. MURMURA¹

¹*Department of Medical, Oral and Biotechnological Sciences, Dental School, "G. d'Annunzio" University of Chieti–Pescara, Chieti, Italy;*

²*Departmental Section of Legal Medicine, University of Florence, Italy*

Received May 7, 2012 – Accepted September 13, 2012

The superoxide dismutases (SODs) are the major enzymatic defence mechanism against toxic reactive oxygen species generated during normal oxidative metabolism and during the respiratory burst associated with inflammation. To further clarify the potential role of copper-zinc (Cu/Zn)-SOD during inflammation of pulp tissue in humans, the aim was to determine whether significant changes in Cu/Zn-SOD activity occur in healthy dental pulp after dental preparation. The condition of the pulp was assessed using clinical and radiographic evaluation. Thirty systemically healthy patients were the source of the pulp tissue, which was collected by longitudinally grooving and splitting teeth that were matched between the control dental pulp and the prepared tooth (test) dental pulp. Cu/Zn-SOD activity was determined through spectrophotometric methods, with Mann–Whitney tests used to assess the significance of the differences between the groups. The Cu/Zn-SOD activity was 168.2 ± 46.4 mU.mg⁻¹ total protein (range: 96–212 mU.mg⁻¹) in the control group, and 328.2 ± 84.2 mU.mg⁻¹ total protein (range: 280–420 mU.mg⁻¹) in the test group. The difference between the groups was statistically significant, at $P < 0.001$. These results demonstrate a potential role for Cu/Zn-SOD during dental pulp inflammation in humans after dental preparation.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.

LETTER TO THE EDITOR

**PATHOPHYSIOLOGICAL MECHANISMS LINKING DEPRESSION AND
ATHEROSCLEROSIS: AN OVERVIEW**

C. PIZZI¹, L. SANTARELLA¹, M.G. COSTA¹, O. MANFRINI¹, M.E. FLACCO², L. CAPASSO²,
S. CHIARINI², A. DI BALDASSARRE² and L. MANZOLI²

¹*Department of Specialistic, Diagnostic and Experimental Medicine University of Bologna, Italy;*

²*Department of Medicine and Aging Sciences, University of Chieti, Italy.*

It is well recognized that depression is independently associated with cardiovascular events. However, uncertainties remain on the pathophysiological pathways underlying the association between depression and coronary heart disease. In addition to the traditional cardiovascular risk factors, autonomic nervous system (ANS), low grade of inflammation, platelet and hypothalamic-pituitary-adrenal axis function and genetic factors may adversely impact the endothelium of the arterial wall. We provide an overview of the pathophysiological mechanisms and indices which seem to have a role in promoting and accelerating atherosclerosis and its complications due to plaque rupture and thrombosis. Given that the relationship between depression and atherosclerosis cannot be fully explained by single mechanisms, which seem at least partially interrelated, the depression-related dysfunctions in the ANS and hypothalamic-pituitary-adrenal axis seem to play a major role, promoting chronic inflammation, endothelial dysfunction and platelet activation and aggregation, which in turn are key steps in the development of atherosclerosis and its complications.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

**DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF
INTEREST RELEVANT TO THIS ARTICLE.**

LETTER TO THE EDITOR

MAGNESIUM STEARATE: AN UNDERESTIMATED ALLERGEN

A. TAMMARO¹, C. ABRUZZESE¹, A. NARCISI¹, G. CORTESI¹, F. PERSECHINO¹,
F.R. PARISELLA² and S. PERSECHINO¹

¹*U.O.C. Dermatology, NESMOS Department, Faculty of Medicine and Psychology, University of Rome "Sapienza", Rome, Italy;* ²*Faculty of Medicine, University of Towson, Maryland, USA*

Received February 29 2012 – Accepted October 29, 2012

Magnesium stearate is a substance often used as a diluent in the manufacture of medical tablets, capsules and powders. Moreover it is usually found as a food additive or pharmaceutical excipient. We report the first case of a 28 years old woman affected by an allergic reaction from this substance with an urticarial manifestation.

*LETTER TO THE EDITOR***AN UNCOMMON ASSOCIATION OF ANTIPHOSPHOLIPID SYNDROME,
SELECTIVE IgA DEFICIENCY AND RESISTANT-TO-TREATMENT RELAPSING
POLYCHONDritis: EFFICACY OF INFLIXIMAB**

D. FIRINU, A. FRAU, M. PISANU, M.M. LORRAI, R. MELEDDU, F. MUSU, P.E. MANCONI
and S.R. DEL GIACCO

*Department of Medical Sciences “M. Aresu”, Unit of Internal Medicine, Allergy and Clinical
Immunology, Azienda Ospedaliero-Universitaria, University of Cagliari, Italy*

Received July 25, 2012 – Accepted October 30 2012

Autoimmune complications in the context of primary immunodeficiency diseases represent a well-known phenomenon, and this is widely recognized also for Selective Immunoglobulin A deficiency (IgAD), the most common primary antibody deficiency (PAD). Relapsing polychondritis (RP) is a rare immune-mediated, difficult to treat, disorder in which the cartilaginous tissues are the target for inflammation and damage. Ocular inflammatory manifestations in RP are frequent and often sight-threatening. Antiphospholipid syndrome (APS) is an acquired prothrombotic state related to circulating autoantibodies against phospholipids and/or their cofactors. Rare reports of APS associated to RP, PAD and APS or PAD and RP are available.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

**DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF
INTEREST RELEVANT TO THIS ARTICLE.**

LETTER TO THE EDITOR

DOPAMINERGIC RECEPTORS IN THE HUMAN SKIN

A. TAMMARO¹, C. CAVALLOTTI², A.A. GASPARI³, A. NARCISI¹, F.R. PARISELLA⁴
and C. CAVALLOTTI⁵

¹*U.O.C. Dermatology, NESMOS Department Faculty of Medicine and Psychology, University of Rome "Sapienza", Rome, Italy;* ²*Laboratories of Histopathology, San Gallicano Hospital of Rome, Rome Italy;* ³*UOC Dermatology, University of Maryland, Baltimore, USA;* ⁴*University of Towson, Maryland, USA;* ⁵*Department of Anatomy, University of Rome "Sapienza", Rome, Italy*

Dopamine is a neurotransmitter which plays an important role in many human organs including the skin. In this study we will examine the presence and the distribution of D1 and D2 dopamine receptors in a particular zone of the human skin. Samples of the human plantar skin were harvested during autopsies after the consent of relatives of the dead donors. In this study the following experimental procedures were performed: 1) drawing of the human plantar skin; 2) cutting of tissues; 3) staining of tissues; 4) staining of the nerve fibres; 5) radio-binding methods for labelling D1 and D2 dopamine receptors; 6) light microscope autoradiography; 7) quantitative analysis of images and 8) statistical analysis of data. The dopamine receptors D1 are distributed particularly in the dermis layer of the human plantar skin. They are numerous in lower epidermal layers (with exclusion of the corneal layer) and few in subcutaneous tissue. On the contrary D2 dopamine receptors are prominent in the subcutaneous tissue near the vessels. Quantitative analysis of images and statistical analysis of the data confirm all our results. The specific distribution of D1 and D2 dopamine receptors in the human plantar skin is in close relation with the functions of a particular zone of the human skin that supports the weight of all the body. Moreover the character of dopamine receptors distribution is very important for further understanding the role of these receptors in the human skin.

0393-974X (2012)

Copyright © by BIOLIFE, s.a.s.

This publication and/or article is for individual use only and may not be further reproduced without written permission from the copyright holder.

Unauthorized reproduction may result in financial and other penalties

DISCLOSURE: ALL AUTHORS REPORT NO CONFLICTS OF INTEREST RELEVANT TO THIS ARTICLE.