

THE SHARE OF FOOD ALLERGY IN PATIENTS WITH ATOPIC ECZEMA/DERMATITIS SYNDROME OVER 14 YEARS OF AGE AND THE IMPORTANCE OF ATOPY PATCH TEST IN DIAGNOSIS OF FOOD ALLERGY IN THIS GROUP OF PATIENTS

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Food allergy has often been found in children under 3 years of age with atopic eczema/dermatitis syndrome (AE/DS). The role of food allergy in adolescents and adults with AE/DS remains controversial, a few studies concerning the food allergy in this group of patients exist. **Methods:** We evaluated the food allergy in patients over 14 years of age with AE/DS using food challenge, skin prick test (SPT), serum specific IgE determination and atopy patch test (APT) with native food. **Results:** According to determined criterions, 112 patients were examined (77 women and 35 men, median age 26,6; median SCORAD 33,5). Positive reactions were mostly recorded in skin prick tests (in 47 patients). The positive results of APT were recorded in 11 patients in 22 reactions. The open exposure test (OET) with wheat and cow 's milk has been performed in 83 patients yet. Double-blind, placebo controlled food challenge test (DBPCFC) confirmed the food allergy to wheat in 4 patients and to milk in 1 patients. **Conclusion:** In compliance with our results we suggest that a food allergy may play an important role in AE/DS pathogenesis in patients over 14 years of age. Atopy patch test in complex with other diagnostic methods can help to trace food allergy (especially with the regard to the late phase of allergic reaction).

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B-TYPE NATRIURETIC PEPTIDE FOLLOWING ACUTE LEFT VENTRICLE LEAD FAILURE

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Objective: In isolated rat atria, the hemodynamic overload of 8 mmHg increases B-type natriuretic peptide (BNP) secretion within 4 hours. In patients, the pacemaker switchover from biventricular (BiVP) to isolated right ventricular pacing (RVP) increases pulmonary capillary wedge pressure by 2.0 to 4.8 mmHg, which remains stable afterward during ongoing haemodynamically less favourable RVP.

Methods With the aim to establish whether the switchover from chronic BiVP to RVP increases circulating BNP within 4 hours, the 25 patients on chronically optimized heart failure therapy including BiVP were randomized to a 4-hour period of either evoked RVP (eRVP) or evoked BiVP (eBiVP) with a crossover on the next day. A series of BNP blood samplings (2 before, 6 after the switchover) was provided on each of two consecutive days.

Results Compared with eBiVP, during which a levelled BNP trend was seen, the eRVP exhibited an increasing BNP trend ($P < 0.003$). Compared with baseline BNP, the increased BNP reached significance at 3 h of eRVP (+8.7%, $P < 0.0003$), more pronounced at 4 h (+17.6%, $P < 0.00002$), whilst during eBiVP BNP remained unchanged.

Conclusion In heart failure patients, the pacemaker switchover from chronic BiVP to RVP is sufficient to increase BNP plasma level within 4 hours.

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EFFECT OF COLLAGEN TYPE I GEL AND FIBRIN GEL CULTIVATION ON GENE EXPRESSION IN LIVER MYOFIBROBLASTS

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Liver fibrosis, one of the worldwide health problems, is defined as an excessive accumulation of extracellular matrix (ECM) compounds. Therefore in past years the attention has been paid to the fibrogenic liver cells - hepatic stellate cells (HSC) and liver myofibroblasts (MFB). In the present study we investigated the influence of extracellular matrix environment (fibrin and collagen gel) on gene expression in MFB. cDNA array analysis showed changes in the expression of a number genes when MFB were cultivated in gels. Results confirmed by rt-RT-PCR showed that fibrin gel greatly stimulated the expression of matrix metalloproteinases 13 and 3 (Mmp3, 13). Fibrin and collagen gels inhibited the expression of plasminogen activator inhibitor (PAI-1), thrombospondin-2 (Tsp2) and connective tissue growth factor (CTGF). Level of collagen type1 mRNA remained nearly unchanged. Components of extracellular matrix influenced the expression of some genes profoundly. MFB may produce increased level of mRNA of Mmp3 and Mmp13 as a response to the presence of proteins of ECM. In addition PAI-1, one of proteinase inhibitor, decreases in presence of both collagen type I and fibrin gel. Changes in gene expression of Mmps contribute to in vivo tissue remodelling but the way is not fully understand.

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EARLY EXPRESSION OF Fc γ RI (CD64) ON MONOCYTES OF CARDIAC SURGICAL PATIENTS AND HIGHER DENSITY OF MONOCYTE SCAVENGER CD163 RECEPTOR IN “ON-PUMP” PATIENTS

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Activation of innate immunity cells is inseparably linked to cardiac surgical operation. The aim of this study was to assess the kinetics in the expression of CD64 and CD163 on peripheral blood cells of cardiac surgical patients.

Forty patients, twenty in each group, were operated with (“on-pump”) or without (“off-pump”) cardiopulmonary bypass. Standardized quantitative flow cytometry method was used to determine the expression of surface markers.

The density of CD64 molecule on monocytes reached maximum on the 1st postoperative day whereas the peak for CD64 molecule expression on granulocytes was postponed to the 3rd postoperative day. The expression of CD163 scavenger molecule on monocytes reached maximum on the 1st postoperative day. The density of CD163 molecule on monocytes reached maximum on the 1st postoperative day and was significantly higher in “on-pump” patients in comparison with “off-pump” patients ($p < 0.001$).

The results indicate that the early activation of monocytes precede the activation of granulocytes and the extensive impact of “on-pump” surgery is likely to be suppressed by production of anti-inflammatory molecules.

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MUCOCUTANEOUS CANDIDIASIS AND WOMEN'S SEXUAL HORMONES

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We expect that yeast colonising vagina is similar to those causing infections of the skin and has similar hormonal influence. The aim of our study is to find out if there is any relation between cutaneous/vaginal candidiasis and women's sexual hormones as well as cutaneous and vaginal candidiasis. We examined 54 women with any type of cutaneous candidiasis and divided them into 2 groups according to the presence of the menstrual cycle (MC). Complete mycological investigation from the site of infection including species identification, taking a smear from vaginal and buccal mucouse membrane, taking a blood sample for hormones' levels investigation between 21st-23rd day of MC (fT, tT, PRG, E2, FSH, SHBG) and filling up the questionnaire is performed. We tested some of the isolates under the influence of physiologic concentrations of reproductive hormones (E, PRG,T) in vitro. Although the number of patients is still small the explorative results show that in fertile and perimenopausal period vaginal candidiasis seems to be more frequent and the species more identical in presence of cutaneous candidiasis. Ovulatory cycles with higher levels of PRG probably promote the growth of vaginal infection. The occurrence of cutaneous candidiasis in both studied periods has no difference. We did not reveal androgen dependence. The study continues.

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EFFECTS OF BETA-HYDROXY-BETA-METHYLBUTYRATE TREATMENT ON PROTEIN METABOLISM IN RAT SKELETAL MUSCLE

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Beta-hydroxy-beta-methylbutyrate (HMB) is the leucine metabolite, which could contribute to reversing AIDS- and cancer-related cachexia. The aim of our study was to determine changes after HMB treatment in protein metabolism in rat skeletal muscle.

Intact and septic rats were implanted with osmotic pump with or without HMB content (0.5 g/kg/day). After 24 hours extensor digitorum longus (EDL) and soleus (SOL) muscles were isolated and used for determination of total and myofibrillar proteolysis (PL), protein synthesis (PS), leucine oxidation (OL) and chymotrypsin-like activity of proteasome (CTLA).

Sepsis induced a stimulation of PL, CTLA and OL in both types of muscles and an attenuation of PS in EDL only. In HMB treated septic animals we observed a decrease in OL in both types of muscles, myofibrillar PL and CTLA in SOL and total PL in EDL only. In intact rats treated with HMB we found a decrease in OL and CTLA in SOL, in EDL an increase in PS and total PL and reduction in myofibrillar PL.

The results indicate positive effect of HMB treatment on protein metabolism both in intact and septic animals. This effect is muscle type dependent and is caused by attenuation of proteasome activity and protein breakdown and by stimulation of protein synthesis.

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COMPARISON OF POSTERIOR CAPSULE OPACIFICATION AFTER TWO DIFFERENT SURGICAL METHODS OF CATARACT EXTRACTION

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The purpose of this prospective randomized clinical study is to compare the extent of posterior capsule opacification (PCO) after AquaLase (AqL) and NeoSoniX (NsX) cataract removal modalities using two softwares for PCO quantification- the Evaluation of Posterior Capsule Opacification (EPCO) 2000 software and the OSCA (Open-access Systematic Capsule Assessment) system. Fifty patients (100 eyes) involved in the study were analyzed. The AqL was used in the right eye and NsX in the left eye of each patient. One and two years after surgery, best corrected Snellen visual acuity (BCVA) was measured and digital retroillumination photographs of dilated anterior segments were taken. The photographs were input in the softwares and PCO were computer analyzed. Nd:YAG laser capsulotomy rate was also evaluated. One year after surgery, mean EPCO index (OSCA score) for AqL was 0.324 ± 0.305 (0.7097 ± 0.3777) and for NsX 0.298 ± 0.341 (0.8584 ± 0.4323). After two years, mean EPCO index (OSCA score) for AqL was 0.395 ± 0.347 (0.916 ± 0.575) and for NsX 0.434 ± 0.352 (0.969 ± 0.47). Capsulotomy rate AqL vs. NsX after one year was 0:1 and after two years 1:3. In our study, AqL showed mostly better PCO results and also better capsulotomy rate, one and two years after surgery, nevertheless the benefit was not statistically significant.

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MARGINAL ADAPTATION OF PROCERA® ALLCERAM INCISOR AND MOLAR CROWN COPINGS

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Aim : To investigate the absolute marginal adaptation [AMA], effect of tooth group variation and axial surface on AMA of Procera® AllCeram copings [Nobel Biocare, Sweden].

Materials and methods: #11 and #16 typhodont teeth were prepared for all ceramic crown, embedded in resin blocks, duplicated 9 times and allotted into three groups [$n = 12$]. Procera® AllCeram 0.6mm copings were fixed with Zinc phosphate [AZ], Glass ionomer [AG], and Dual® cement [AR] using calibrated finger force. The AMA were measured using the SEM. Mann-Whitney test was applied to find significant difference between groups and Kruskal-Wallis test for intra group ($P = 0.05$).

Results: AMA of groups [$n=6$] was AGI-37.9 μm , AGM-27 μm . ARI-44 μm , ARM-50 μm , AZI-59 μm , & AZM-48 μm . There was no statistically significant difference in AMA between tooth groups. The widest gap was on buccal [85.4 $\mu\text{m} \pm 31.5$] and lingual [60.8 $\mu\text{m} \pm 36$] for incisors and on lingual [59.8 $\mu\text{m} \pm 10$] and distal [57.3 $\mu\text{m} \pm 13$] for molars.

Conclusions: AMA of Procera® AllCeram copings were within biologically accepted level of 100 μm . Tooth group variations did not affect the AMA. The buccal and lingual axial surface of incisors and distal and lingual surface of molars showed the widest marginal gap.

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CHANGES IN PRO-ANGIOGENIC CHEMOKINES LEVELS IN PSORIASIS PATIENTS TREATED BY GOECKERMAN'S THERAPY

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Goeckerman's therapy (GT) of psoriasis is based on daily application of pharmacy grade coal tar on affected skin with subsequent exposure to UV light. The aim of this study was to evaluate the influence of Goeckerman's therapy of psoriasis on the levels of proangiogenic chemokines ENA-78, GRO alpha, IL-8, MCP-1 and RANTES in peripheral blood of 22 children's patients with psoriasis. 22 otherwise healthy children serve as a control group. Efficacy of Goeckerman's therapy was delineated by PASI score. Disease activity was significantly diminished by Goeckerman's therapy ($p < 0.001$). No correlations between serum levels of any parameters tested to disease activity expressed as PASI score were found. Serum levels of GRO alpha and MCP-1 in patients before GT were significantly higher than those measured in healthy blood donors (GRO alpha: $p = 0.0128$ and MCP-1: $p = 0.0003$). Serum levels of GRO alpha, MCP-1 and RANTES were significantly diminished by GT (GRO alpha: $p = 0.002$, MCP-1: $p = 0.048$ and RANTES: $p = 0.0131$). Compare to the healthy controls, serum level of MCP-1 remained significantly increased in psoriasis patients after GT ($p < 0.0001$).

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COSTAL CARTILAGE OSSIFICATION. X-RAY STUDY

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Ossification of costal cartilages is one of many changes reflecting their ageing. Costal cartilages are permanent cartilages, hence their ossification is incomplete and appears only in a limited percentage of population. The aim of our study was to evaluate the occurrence of costal ossification in the sample from the Czech population and establish, if the ossification patterns can be used for the determination of gender. Ossifications were studied radiologically. We made diagnosis of ossification in two collections of radiograms. The first collection consisted of 1044 chest and abdominal radiograms of patients in age from 10 to 95 years from the Department of Radiology (537 males and 507 females). The second collection was a set of 55 radiograms of chest plates or fragments of chest plates of cadavers in age from 15 to 98 years (29 males and 26 females). This human necropsy material was acquired at necropsy at the Department of Anatomy and at the Department of Forensic Medicine. Ossification changes were divided into six groups – patterns. Ossifications were identified in more than 80 % of cases, they appear at the end of puberty and their occurrence increases with age. The sexual difference in pattern of human costal cartilages is statistically significant and thus highly predictive for sex determination.

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CYTOTOXICITY OF DENTAL ALLOYS

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The problems of metallic materials in the mouth cavity are still discussed despite a great development of non-metallic materials. Our aim was to verify the cytotoxic influence of dental alloys on the cell culture.

We selected commonly used chrome-nickel alloys. The test monitored the cytotoxic influence of the solid sample – circular target of a dental alloy on the cell line of mouse fibroblasts NIH 3T3. The test of direct contact and the extract test were monitored for testing of the cytotoxicity in vitro.

Our results show, that all tested chrome-nickel dental alloys are considered non-toxic in the direct contact test – with zero cytotoxicity level and Zone Index/Lysis Index 0/0. In the extract test, the level of cytotoxicity is also zero, only % of the lifetime differs with 100% extract and when thinning 1 to 1 and 1 to 3. With 100% extract a small lifetime reduction is seen however it does not exceed 80% and thus the material is considered non-toxic.

All tested chrome-nickel dental alloys can be considered non-toxic. There can only be found slight differences in the extract test with different thinning. It slightly contradicts with the data gained from literature where the chrome-nickel alloys are considered cytotoxic.

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