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D08-3

THE EFFICACY OF AUTISM-RISK SCREENING OF YOUNG CHILDREN IN SLOVAK POPULATION SAMPLE

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Questions: Autism Spectrum Disorders (ASD) are neurodevelopmental disorders characterized by deficits in social communication and restrictive, repetitive behavior. The aim of our study was to assess efficacy of screening for ASD using *M-CHAT questionnaire* in a sample of Slovak high-risk population and compare it with the objective diagnostic tools such as *Autism Diagnostic Observation Schedule - second revision (ADOS-2)* and *Autism Diagnostic Interview - Revised (ADI-R)*.

Methods: Study population included 92 children, age 1,7 - 6, who were signed up by their parents for ASD testing at our institution during years 2013 to 2016. Children were screened for ASD by M-CHAT questionnaire filled by their parent, and then examined using ADI-R and ADOS-2.

Results: Significant difference of summary score of M-CHAT between group of children with ASD and without ASD, diagnosed using ADOS and ADI-R was observed ($p < 0.001$). Two out of three diagnostic domains of ADI-R: scores of Abnormalities in Reciprocal Social Interaction and Abnormalities in Communication significantly correlated with total M-CHAT score ($p < 0.01$). Total M-CHAT score correlated with overall rate of symptoms in ADOS ($p < 0.05$) and as well as with Social Affect score ($p < 0.01$) and Restricted and Repetitive Behavior scores ($p < 0.01$).

Conclusions: Our results in the sample of high-risk children demonstrated that the M-CHAT score can be used to differentiate between children with and without ASD risk and that it correlates with objective measures for diagnosis of ASD, i.e. with ADOS and ADI-R. Further research is needed to determine the sensitivity and specificity of M-CHAT in ASD screening in general population of children in Slovakia.

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D08-4

Levels of Faecal Calprotectin Correlate With Behavioural Markers in a Sample of Individuals with Autism Spectrum Disorders from Slovakia

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Questions: Autism Spectrum Disorders (ASD) are neurodevelopmental disorders which affect social interaction, communication and behaviour. There is an evidence that intestinal inflammation is involved in aetiology of ASD, and elevated levels of inflammatory markers are associated with more aberrant behaviours. Levels of faecal calprotectin (FC) reflect local inflammation of the digestive tract. The aim of the study was to assess concentrations of FC and their correlations with behavioural markers in a sample of subjects with ASD.

Methods: Concentration of FC was determined by ELISA method in 87 individuals with ASD, and 51 controls (29 siblings and 22 non-related controls).

Results: In non-related controls significantly lower values of FC were observed than in both subjects with ASD and their siblings. In the group with ASD, significant correlations of FC with all three main domains of the diagnostic tool ADI-R (Autism Diagnostic Interview-Revised) were found: qualitative abnormalities in social interaction and communication, restrictive and repetitive patterns of behaviour. Results indicate that higher levels of FC correlate with more serious behavioural impairments.

Conclusions: Our results suggest that intestinal inflammation may be one of the factors implicated in the pathophysiology of ASD. More studies are needed to validate the utilization of faecal calprotectin as a diagnostic marker for ASD.

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D08-5

Study of Acylcarnitine Profile in Dry Blood Sample of Children with Autism Spectrum Disorders

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Questions. Autism spectrum disorders (ASD) are disorders of neurodevelopment characterized by deficits in social communication and interactions, and restricted pattern of behaviours. The specific aetiology of ASD is only partially explained, and it was proposed that ASD can be associated with mitochondrial and fatty acid oxidation disorders. Acylcarnitines (ACC) can be diagnostic for a number of β -oxidation defects. The aim of this pilot study was to investigate the levels of acylcarnitines in dry blood samples of children with and without ASD.

Methods. A total of 59 subjects with ASD and 96 controls without ASD aged 2-17 years were included in the study. Dry blood sample was taken during office visit. Commercial kit Chromsystems® was used for determination of ACC levels by the method of tandem mass spectrometry. Groups were compared using analysis of variance.

Results. All patients except one showed normal ACC profiles, or ACC profiles nonspecific for a certain disorder. However, ACC species C0, C2, C8, C10, C10:1, C12, C14:1, as well as several of their ratios were scored as statistically significantly higher, and C5 significantly lower in children with ASD in comparison with children without ASD.

Conclusions. Significant differences in dry blood ACC of children with and without ASD were found that provide a basis for their further investigation as potential markers for an early diagnosis of ASD.

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D08-6

LOW DOSE CAFFEINE PROTECTS FROM PSYCHOLOGICAL STRESS AND IMPROVES COGNITIVE FUNCTION

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INTRODUCTION

Caffeine is an adrenergic antagonist that enhances neuronal activity. Psychological stress depresses cognitive function.

AIM

To investigate the effects of acute and chronic low dose caffeine on anxiety-like behavior and cognitive functions of acute or chronic psychological stressed rats.

METHODS

Acute or chronic caffeine (3mg/kg) was administered to male Sprague Dawley rats (n=42) before acute (cat odor) and chronic variable psychological stress (restraint overcrowding stress, elevated plus maze, cat odor, forced swimming) induction. Anxiety and cognitive functions were evaluated by hole-board and object recognition tests. The brain glutathione and malondialdehyde (MDA) assays, myeloperoxidase (MPO), nitric oxide (NO), superoxide dismutase (SOD), luminol and lucigenin activity and histological examination were done. ANOVA and Student's t-test were used for statistical analysis.

RESULTS

The depressed cognitive function with chronic stress exposure and the increased anxiety-like behavior with both stress inductions were improved via both caffeine applications ($p<0.05-0.001$). Both caffeine pretreatments in chronic stressed rats, and chronic caffeine in acute stressed ones reduced the elevated MPO activities ($p<0.05-0.01$). The increased MDA, lucigenin and NO levels with acute stress were inhibited with chronic caffeine ($p<0.05-0.01$), MDA and NO levels were declined by acute caffeine ($p<0.001$). The induced histological damage with both stress exposures was ameliorated with chronic caffeine.

CONCLUSION

The increased anxiety-like behavior and depleted cognitive functions under stress conditions were improved with both caffeine pretreatments by decreasing oxidative damage parameters.

D08-7

Long shift hours was associated with increased attention performance in pediatric registrars

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Introduction: Long shift hours are generally thought to negatively affect working performance. Pediatric registrars normally have long continuing shifts lasting and this thought to affect their attention. Therefore, the aim of the current study was to assess the effects of long shifts on their performance in attention tests.

Materials and methods: Pediatric registrars who had 32 hours continuous shifts (n=9) were compared to nurses who had normal work hours (0800 to 16:00 h; n=10) in terms of attention tests. The study started at 08:00 h on Day 1 and continued until 17:00 h on Day 2. On both days of the study, an attention test was filled at 08:00 and 16:00 h. The test consisted of sequential numbers dispersed on an A4 paper and participants were asked to follow these numbers as quickly as they can by starting from number 1 to number 25. The time was recorded by using a chronometer. The data was analyzed by using t tests.

Results: Mean time for completing attention test was 22 ± 1.5 seconds for pediatric registrars and 30 ± 2.7 seconds for nurses who had normal day time work hours ($P=0.023$). Additionally, performance of both groups were increased by time (28.7 ± 2.5 and 24.6 ± 1.9 seconds for Day 1 morning and Day 2 evening, respectively, $P=0.045$).

Conclusions: Unexpected better performance in pediatric registrars might be due to a work-oriented attention, which may be associated with vital interventions in a susceptible pediatric population.

D08-8

Influence of Green tea extract and Passiflora, on heart rate and fatigue sensation, in intense mental stress

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Questions. Green tea (GT) and Passiflora (PS) are known for their anti-stress and adaptogen effects. The aim was assessing the influence of a GT extract product (GTP) and PS product (PSP), in intense mental stress, by measuring heart rate (HR) and fatigue sensation (FS).

Methods. The chosen subjects (n = 24 males) were organized into 4 groups: 1) control (C=6) no GTP, no PSP; 2) only with GTP (GT=6); 3) only with PSP (PS=6); 4) with both GTP and PSP (GTPS=6). Stress was represented by a verbal arithmetic mental effort. The analyzed indicators were HR and FS. Statistical evaluation was done on the basis of Student test.

Results. Comparing GTP and PSP separated administration, the two parameters were significantly reduced, post mental stress: HR, more intense after GTP ($p=0.002$), FS more intense after PSP ($p=0.003$). Compared to GTP and PSP, GTPS reduced more, post mental stress, both HR (GT-GTPS, $p=0.03$; PS-GTPS, $p=0.01$) and FS (GT-GTPS, $p=0.02$; PS-GTPS, $p=0.04$).

Conclusions. 1) Under the GTP respectively PSP influence, HR and the FS were significantly reduced. 2) There are differences between the GTP and PSP treated groups, both for the HR and FS evolution. 3) It has been proven that the GTPS effect is significantly higher than the GTP and PSP effects, on HR and FS. 4) We suggest the using of GTP and PSP combination, in mental stress modulation.

Key words: green tea, passiflora, stress, mental stress, heart rate, fatigue sensation

D08-9

Evaluation of the influence of Romanian product "Emotional comfort" on facial expressions impact, in acute physical stress

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Questions. Facial expression of the public can influence mood and functional parameters of an athlete. The objective of this study was to evaluate the influence of "Emotional comfort" product (ECP), on the facial expressions (FE) impact in acute physical stress.

Methods. Untrained volunteers (n=12 men) were divided in group: a) without ECP (C=6); b) with ECP (EC=6). Chosen FE: neutral (N), disappointment (D) and encouragement (E), were played in three short films, while the subject was running on treadmill. Stress was represented by an intense short term physical effort on a treadmill Excite+Run MD, in three successive physical sequences (PS), in PS+N/ PS+D/ PS+E. Evaluated parameters: heart rate (HR); three positive emotions (energized EG, relaxed RL, in control IC). *Parameters assessments:* 24h (T1) and 15 min (T2) before PS+N; 15 min after PS+N (T3), PS+D (T4) and PS+E (T5); 24h after PS+E (T6). Statistical evaluation was made on the basis of Student test.

Results. At EC, compared to C group, HR values were significantly reduced at: T2 ($p=0.005$), T3 ($p=0.02$), T4 ($p=0.04$) and T5 ($p=0.004$). At EC - compared to T1- EG, RL and IC were: a) almost unchanged at T2 and T3; b) moderately significantly reduced, at T4 (EG, $p=0.05$; RL, $p=0.04$; IC, $p=0.04$); c) significantly increased at T5 (EG, $p=0.02$; RL, $p=0.001$; IC, $p=0.01$).