DMF fodder), VEHDMF (subjected to i.c.v. injection of vehicle, fed with 0.4% DMF fodder), STZCTR (subjected to i.c.v. injection of STZ, fed with standard fodder), VEHCTR (subjected to i.c.v. injection of vehicle, fed with standard fodder). After Morris water test, spleens were taken, and rats were sacrificed. Forty eight hr after incubation of splenocytes (4×106/ml) with ConA (2.5 μg/ml), supernatants were collected. Then, concentration of IL-10 in the supernatants was determined (ELISA). Statistical significance was ascertained by U Mann-Whitney test and the results were considered significant at $p \leq 0.05$.

Results: Without ConA stimulation, relative to the VEHCTR (82.13 $\pm$ 20.253 pg/ml), VEHDMF (83.965 $\pm$ 24.936 pg/ml) and STZDMF (75.595 $\pm$ 3.096 pg/ml) group, significantly ($p \leq 0.05$) higher production of IL-10 by spleen T lymphocytes in the STZCTR (128.137 $\pm$ 1.095 pg/ml) group, including both the LRs (122.985 $\pm$ 22.648 pg/ml) and the HRs (126.109 $\pm$ 3.124 pg/ml), was observed. Moreover, there was a significant ($p \leq 0.05$) HR vs. LR difference within the VEHCTR (LRs: 99.129 $\pm$ 0.547 pg/ml, HRs: 65.18 $\pm$ 6.086 pg/ml), VEH DMF (LRs: 102.961 $\pm$ 17.239 pg/ml, HRs: 64.97 $\pm$ 4.182 pg/ml) and STZDMF (LRs: 81.953 $\pm$ 4.17 pg/ml, HRs: 71.491 $\pm$ 1.916 pg/ml) group. After ConA stimulation, the lowest IL-10 concentration in the STZDMF (48.164 $\pm$ 6.502 pg/ml) whereas increased IL-10 production in the VEHDMF (143.878 $\pm$ 13.158 pg/ml) and STZCTR (156.711 $\pm$ 41.497 pg/ml) group were found, relative to the VEHCTR (1207.31 $\pm$ 64.466 pg/ml; $p \leq 0.05$). Moreover, in the STZDMF animals, production of IL-10 was significantly ($p \leq 0.05$) higher in the HRs (818.56 $\pm$ 114 pg/ml) rather than LRs (48.164 $\pm$ 6.502 pg/ml). Finally, significant difference ($p \leq 0.05$) in the IL-10 production between the non-stimulated (control) and ConA stimulated T lymphocytes, was observed in the VEHCTR, VEHDMF, and STZDMF groups.

Conclusion: The results obtained suggest that oral DMF treatment could decrease spleen T lymphocyte production of anti-inflammatory IL-10 in rats with STZ-induced model of Alzheimer's disease and its immunomodulative effect depends on the rat's behavioral characteristics (high vs. low responders to novelty).

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P.161 Cigarette smoking and vascular dementia in rats: Relationships with oxidative stress

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Purpose: Chronic exposure to cigarette smoke is consistently and causally linked to oxidative stress in animal models. Increased risk of dementia resulting from smoking may be realized through cardiovascular disease because smoking-related oxidative stress has been hypothesized as an underlying mechanism for cardiovascular diseases (such as increase in platelet viscosity and endothelial dysfunction) and cardiovascular diseases contribute to an increased risk of vascular dementia. However, few previous studies have reported that smoking may also predispose to vascular dementia. Therefore, the present neurobehavioral study was undertaken to evaluate the effect of smoking on cognitive functions, blood pressure, vascular reactivity and oxidative stress in rats.

Methods: Eighteen male Wistar rats were divided into two groups, with nine rats in control group, nine rats in the cigarette smoke (smoking) group. The control group were exposed to clean air, while the smoking were exposed to cigarette smoke for 2 h daily with commercially available cigarettes (long LM) for 8 weeks using the modified ventilated smoking exposure chambers as previously described by Chen et al. After 8-week exposure, passive avoidance (PAT) and Morris water maze test (MWMT) were used for evaluated of cognition. In PAT, preacquisition, acquisition, and retention trials were carried out. In acquisition trial, an electric foot shock (0.5 mA) of a 3s duration was delivered to the animal via grid floor. Retention trial was evaluated 24 h post-training by returning the animals into the light compartment and recording their latency to enter the dark compartment. The MWMT was performed in a circular pool and a platform was located at the centre of a fixed quadrant. Rats received three consecutive daily training trials for the following 4 days. On the fifth day, the probe test was performed. The platform was not placed in the pool and the rats were allowed to swim freely for 60 s. The total time that subjects spent in the escape platform's quadrant was recorded. Systolic blood pressure was recorded by tail cuff plethysmography, their aortas were removed and placed in the organ chambers for isometric tension measurements. Aortas and brains were dissected for ELISA and immunohistochemical analysis. One-way, two-way ANOVA and Kruskal-Wallis tests are used for the statistical analysis.

Results: There was no significant difference between two groups for the first day latency while in smoking rats the second day latency was significantly shortened compared to control group in PAT. Also, in MWMT, the results showed

a decrease in the time spent in the escape platform's quadrant in the probe test in smoking rats. Endothelium-dependent vasorelaxation responses and eNOS immunoreactivity decreased but endothelium independent vasorelaxation did not change in smoking rats. No significant change was observed in the systemic blood pressure of animals between two groups. We found that the levels of oxidative stress were significantly increased in the hippocampus of the smoking group.
Conclusions: Our data suggested that chronic cigarette smoking could induce cognitive decline, endothelial dysfunction and increased oxidative stress in hippocampus. These changes may explain why smoking can predispose brains to vascular dementia.

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P.162 Evaluation of trazodone and quetiapine in patients with Alzheimer's type dementia and sleep disturbance

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Background: Insomnia is a key symptom of most psychiatric disorders. Irregular sleep pattern and in particular troublesome behavior in the evening or night is often a problem in dementia. Off-label agents such as trazodone and quetiapine are commonly used to treat patients with insomnia in adults and also in old age patients [1]. The safety and efficacy of trazodone and quetiapine as medications for treatment of insomnia have never been directly compared in old age population. The main objective of this study was to compare the effectiveness of trazodone and quetiapine among inpatients clinically stable psychiatric by measuring the traditional sleep parameters of total sleep time in bed, total sleep time, number of nighttime awakenings, sleep efficiency and sleep quality. Other outcome parameters were to assess tolerability profile and length of hospitalization [2,3].
Subjects and method: Patients inclusion criteria were age 68 to 87 years, admitted between February 2016 and December 2016, diagnosed with Alzheimer's type dementia and insomnia symptoms present at admission [4]. The group of 43 patients (17 males, 23 females), mean age 77.4, who met the DSM-IV-TR criteria for Alzheimer's disease (AD) was open-label, distributed in 2 parallel groups of patients. The first group (n1 = 23) was treated with trazodone 50-200 mg and the second group with quetiapine 50-300 mg (n2 = 20). Exclusion criteria constituted of primary insomnia, other psychiatric comorbidities, receiving trazodone or quetiapine up to 4 weeks prior to the study, and inability to coherently communicate. Subjective patient and family caretaker interviews and objective nursing sleep log reviews composed the data set [2].
Results: On average, mean total sleep time (TST) hours were longer among patients receiving trazodone versus those receiving quetiapine according to patients' subjective reports (7.82 vs 7.22, $p < 0.01$) and the nursing sleep logs (8.42 vs 8.01, $p = 0.04$). Patients receiving trazodone experienced relative the same sleep efficiency (SE) nighttime versus those receiving quetiapine (0.89 vs 0.85) according to the nursing sleep log report. Patients receiving trazodone reported more side effects of constipation and daily dizziness than patients receiving quetiapine.
Statistical analysis: Patient interview for reporting of adverse drugs events were performed. All concurrent medications, efficacy and adverse drug reaction were recorded at all visits. Statistical analysis employed descriptive statistics with paired t-test. The level of significance for all analyses was set up at $p<0.05$.
Conclusions: Regarding to total sleep time trazodone was a more effective alternative than quetiapine. However, patients receiving trazodone experienced more gastrointestinal patient-reported side effects. Risk of falls showed no significance difference between groups. There is a need for trials, particularly of those drugs that are commonly prescribed for sleep problems in dementia. Systematic assessment of adverse effects is also mandatory. However the risk of drug interactions due multiple somatic comorbidities in old age population and the anticholinergic proprieties of psychiatric medication represent a challenge in daily practice.

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P.163 The behavioral and psychological symptoms of dementia in Down syndrome (BPSD-DS) scale: Comprehensive assessment of psychopathology in Down syndrome

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