

10<sup>th</sup> International Conference on

# VASCULAR DEMENTIA

February 22-23, 2018 | Paris, France

## fMRI of healthy elderly during Stroop test and the serial count: Comparative analysis

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**Introduction & Aim:** The term executive function (EF) refers to a number of cognitive abilities that enable and control adaptive, goal-oriented behavior. EF is vulnerable to white matter injury and to perturbations in neurotransmitter systems. As a result, EF is impaired in plenty of neurologic and psychiatric conditions. The aim of the current study was to perform a comparative analysis of the cerebral cortex activation in healthy subjects during task-fMRI with a color-word Stroop test modification and a new suggested counting paradigm.

**Materials & Methods:** 12 healthy control subjects aged 45-63 (2 men) underwent blocked design fMRI on 3T scanner with Stroop test and serial count task. Pre- and post-processing of fMRI data were performed using SPM8.

**Results:** FMRI analysis showed presence of common activation areas across both tasks including bilateral dorsolateral prefrontal cortex (BA 46, 9), premotor cortex (BA 6), supplementary motor area (BA 6), bilateral parietal cortex (BA 39, 40), right anterior cingulate cortex (BA 32), anterior part of insular cortex (BA13), bilateral cerebellar hemisphere, integrated in executive networks. However, serial count task showed no activation in the lenticular nuclei and occipital cortex, unlike the Stroop test.

**Conclusion:** According to our results, serial count could be used as alternative paradigm for EF mapping, especially in patients with vision problems.

### Biography

Zuhra Gadzhieva is a student in the Research Center of Neurology, Department of Angioneurology and Early Rehabilitation after Stroke in the Research Center of Neurology, Moscow, Russian Federation. The main goal of her PhD work is to investigate the mechanisms of cognitive decline in patients with cerebral small vessel disease (multimodal neuroimaging and neuropsychological study).

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