



FESN 2017

Abstract book

POSTER PRESENTATIONS

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Abstract title Neurocognitive alterations in severe obese individuals: neurophysiological and behavioral measures

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Title

Neurocognitive alterations in severe obese individuals: neurophysiological and behavioral measures

Objective

Neurocognitive alterations have been shown in severe obese, in terms of functional brain changes within the prefrontal areas devoted to executive functioning and hyperresponsivity of the striatum to high-caloric food which leads to enhanced food-related attention. In the present study, neurophysiological and behavioral correlates of cognitive control and attention toward food-related stimuli have been investigated in severe obese individuals.

Participants and methods

Twenty-four obese and 28 normal-weight were evaluated in fasting state. Cognitive control in presence of food-related stimuli was assessed by a modified version of the Simon task, in which task-irrelevant distractors were presented at the center of the screen accordingly to three conditions: food images, objects images or a neutral white square. Reaction times (RTs) and event-related potentials (ERPs) were acquired in spatial corresponding (C) and spatial non-corresponding (NC) conditions for each type of distractor.

Results

Obese showed larger interference effect (difference in RTs between NC and C trials) in presence of food-related distractors compared to the neutral condition. In normal-weight, the amplitude of the N2 was higher in C compared to NC trials whereas this effect was not present for the obese group. Longer P3 latency was shown in obese compared to normal-weight.

Conclusion

Severe obese individuals showed enhanced attention toward food stimuli which interferes with cognitive control during task execution. This may suggest impaired cognitive control in presence of food-related stimuli in severe obese, at a behavioral level. For the EPRs results, the N2 amplitude was higher in conflict trials (NC) in normal-weight but not in the obese group, suggesting impaired conflict detection in the latter. Longer P3 latency showed in the obese group may suggest a slowing down in information processing speed. Overall, between group differences in neurophysiological indices might reflect neurocognitive alteration associated with severe obesity.