

P02-68 - NEURAL CORRELATES OF THE PROCESSES OF DECEPTION: AN FMRI STUDY

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Introduction: Detection of deception is important for the practice of psychiatry, especially for forensic psychiatry. Previous neuroimaging studies have identified that activity of the prefrontal and parietal cortices was associated with deceptive behaviors. However, the temporal sequence of neural activation in these regions remained unknown.

Objectives: In this fMRI study, we used a face recognition deception paradigm involving three mental processes in the following temporal order of a deceptive response:

- (1) Perception
- (2) Formulation
- (3) Response, to examine the activation of the brain regions during the process of deception.

Methods: Fourteen healthy males were scanned by a 3T Philips scanner while performing the deception task. A 2-way ANOVA model was employed to understand the activation pattern of neural correlates of deception during the three processes studied.

Results: Activations of the prefrontal, the fusiform, the supramarginal, the postcentral, the angular, the precuneus, and the rolandic areas were found to peak at different processes. Specifically, the fusiform, the prefrontal, and the precuneus regions were activated first, with their activation peaked at the perceptual process. On the other hand, the activity of the supramarginal, the angular, and the postcentral regions peaked at the formulation process. Activity of the rolandic region was peaked at the response process.

Conclusions: This study showed that there are different temporal gradients of neural activations with respect to the cognitive processes that evolve in deception. By understanding the specific role played by each of the neural correlates during deception, the accuracy and reliability of lie detection could be enhanced.