

ANXIETY-RELATED NEURONAL RESPONSES IN PHOBIC POSTURAL VERTIGO

A. Chrobok¹, A. Länger¹, S. Karch², K. Lehmann¹, D. Keeser², D. Eser-Valeri², B. Ertl-Wagner³, M. Dieterich⁴, R. Rupprecht⁵, O. Pogarell²

¹Department of Psychiatry and Psychotherapy German Center for Vertigo and Balance Disorders (IFB), Ludwig-Maximilians-University, Munich, Germany ; ²Department of Psychiatry and Psychotherapy, Ludwig-Maximilians-University, Munich, Germany ; ³Institute of Clinical Radiology, Ludwig-Maximilians-University, Munich, Germany ; ⁴Department of Neurology, Ludwig-Maximilians-University, Munich, Germany ; ⁵Department of Psychiatry, University of Regensburg, Regensburg, Germany

Vertigo and anxiety are frequent symptoms in both psychiatric and vertigo patients, especially in those with phobic postural vertigo (PPV). The aim of this study was the investigation of anxiety-associated functional responses in PPV patients compared to healthy controls. For that purpose cholecystokinin tetrapeptide (CCK-4), a valid model to experimentally induce anxiety symptoms, was used.

15 PPV patients and 15 matched healthy controls underwent challenges with CCK-4. During the paradigm, participants did not know the exact time point of the injection in order to separate the anticipatory and CCK-4 induced anxiety. The panic symptom scale score was assessed before and after the injection.

During *anticipatory anxiety* healthy controls showed functional responses mainly in fronto-temporal regions. Patients suffering from PPV showed pronounced BOLD responses in the (ventral) anterior cingulate cortex (ACC), dorsolateral prefrontal cortex, orbitofrontal cortex and precuneus. In healthy subjects, *CCK-4 induced anxiety* was accompanied by activations in the medial and inferior frontal cortex. In PPV, the CCK-4 injection led to increased activities particularly in the ACC, the cuneus, the cerebellum, the amygdala and fronto-temporal regions.

Given the fact of increased neuronal responses in emotion-related brain areas in patients with anxiety disorders these findings could provide evidence for common aspects of phobic postural vertigo and anxiety disorders.