Hippocampal damage and affective disorders after treatment of cerebral aneurysms.

Despite good neurological outcome after the treatment of ruptured or incidental cerebral aneurysms, many patients complain about mood disturbances such as anxiety and depression. The present study investigated the nature of these affective disorders, their trigger factors, and corresponding structural brain changes. We assessed 63 patients matched by history of previous subarachnoid hemorrhage (SAH) and treatment modality (clipping vs. coiling) by a test battery including the Hospital Anxiety and Depression Scale (HADS) and beck depression inventory-II (BDI-II). MR imaging for the evaluation of structural changes included $^{1}$H-MR spectroscopy, hippocampal volumetry, and diffusion tensor imaging (DTI). The applied multimodal imaging revealed no significant differences between patients with previous SAH and patients with incidental aneurysms; there were also no substantial differences between patients with and without previous SAH with respect to depression and anxiety. However, we observed significantly higher mean HADS scores in patients treated surgically versus patients treated by coiling ($p<0.01$). BDI-II tended to be higher in surgically treated patients, but this difference appeared statistically
insignificant. Surgically treated patients displayed substantial hippocampal damage in all imaging
techniques: reduction in mean concentrations of N-acetylaspartate (p = 0.04), hippocampal volume
reduction (p = 0.012), and diffusion disorder (p = 0.02). The structural alterations correlated
significantly with the increased HADS scores. In contrast to endovascular treatment, aneurysm
surgery seems to be associated with an increased incidence of mood disorders corresponding to
hippocampal neuronal loss, independent of preceding SAH.