

ings altogether suggest that V1 is a neural substrate of becoming aware of having seen.

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Early electroencephalography in acute ischemic stroke: Prediction of a malignant course?—L. Burghaus, L. Burghaus, C. Dohmen, B. Bosche, N. Galdiks, L. Winhuisen, B. Szelies, W. Haupt (Universitätsklinik, Neurologie, Köln)

Objective: In a considerable number of patients with large middle cerebral artery (MCA) infarction space occupying brain edema develops leading to a malignant course with a high mortality. As interventional treatment strategies must be started before the deterioration occurs predictors of a malignant course are necessary.

Material and methods: This study reports on the results of early electroencephalography (EEG) within 24 h after onset of stroke in 25 patients suffering a large MCA infarct (12 patients with a malignant and 13 with a non-malignant course). EEG analysis was performed according well established indicators for focal as well as global changes.

Results: Significant differences for both groups for beta-activity as well as for the theta-activity within the focus could be observed.

Conclusion: This study shows that in patients suffering from large MCA infarction early EEG may predict benign courses and delivers useful information to select those patients who develop malignant edema.

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A novel BTX-formula with minimized protein envelope complex (Xeomin) in the treatment of patients with cervical dystonia and secondary response failure—P. Bussfeld, U. Kahlen, H. Hefter (Neurologische Klinik Heinrich-Heine-Universität, Düsseldorf)

Background: Due to development of neutralizing antibodies against Botulinumtoxin (BTX) and its complex of accompanying proteins, secondary response failure occurs in 1–5% of all patients with cervical dystonia (CD) treated with BTX over a period of several years. Whereas a development of neutralizing antibodies is boosted by high dosages and short treatment intervals, a further component contributing to high antibody titers is the presence of the accompanying 650 kDa-protein complex. A novel purified 150 kDa-BTX-formula (Xeomin) which has been separated from this protein complex is available for the treatment of CD since Juli 2005. We investigated whether this BTX-formula allows a distinctive improvement in treatment outcome in 30 patients with CD and secondary response failure.

Methods: Included were 18 men and 12 women with the main diagnosis of “idiopathic cervical dystonia” and secondary response failure which was defined as a failure of treatment response within the last three treatment intervals despite of subsequent increase of dosage. We injected the new BTX-formula according to the preceding schemes and adjusted the dosage to a maximum of 200 MU Xeomin. Patients were double-rated live and by video, were evaluated with the TSUI- and TWSTRS-

Scales and were asked to complete the CDQ-24-Questionnaire and a visual analogue scale (VAS). After a period of 4 and 12 weeks, patients were re-rated and the VAS-Data were evaluated.

Results: Four weeks after the first Xeomin injection, the mean TSUI-Score had decreased from 11 to 8.4 points and the mean TWSTRS-Score from 37.8 to 32.1 points. The ratings on the VAS-Scale dropped around 50 percent. We identified a subgroup of patients ($n = 15$) who showed even better results at significant levels ($p \leq 0.05$) according to TSUI- and TWSTRS-Scale. This group was characterized by comparably lower BTX-dosages in the past and a shorter overall treatment duration compared to patients with a low response.

Conclusion: We conclude that a BTX-formula with minimized protein envelope complex (Xeomin) is able to induce significant improvement in the treatment outcome of a subgroup of patients with CD and former secondary treatment response failure and propose further studies in this field.

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The silent cortex revisited: Multimodal evidence for a reorganisation in the hand region of the primary somatosensory cortex in hand amputation and hand dysmelia—C. Christoph¹, C. Koeppel², D.F. Braus³, H. Flor¹ (¹Zentralinstitut für Seelische Gesundheit Mannheim, ²Mahidol University, Salaya, Thailand, ³Neuroimage Nord, Hamburg)

Amputation as well as dysmelia is known to induce a reorganisation of the primary somatosensory cortex (SI). This reorganisation is reflected in a reduced or increased amount of neurons in SI representing the affected part of the body surface. Moreover, the amount of reorganisation in SI was shown to be strongly correlated with dysfunctional effects like phantom pain. While animal studies allow for a direct measurement of the extent of the deafferented areas in SI, studies in humans with phantom pain or dysmelia used rather indirect measures like interhemispheric differences of distances in SI. Thus, little is known about the fate of the particular part of the human cortex that receives input from a smaller amount or even no somatosensory receptors at all. The present study aimed to investigate the reorganization in SI in a patient with phantom pain following hand amputation and a patient with hand dysmelia. We measured bilaterally tactile thresholds and two-point discrimination in six different regions adjacent to the affected body part. In addition, in the amputee we stimulated the median nerve bilaterally at the wrist, thus eliciting sensations in the intact hand and in the phantom. In the dysmelic patient we stimulated the intact and the dysmelic thumb. The evoked neuronal activity was estimated by means of a simultaneous EEG and fMRI measurement and a subsequent dipole analysis. In both patients we found a reduction in two-point discrimination adjacent to the affected hand compared to the intact side. The same holds true for the tactile thresholds in the dysmelic patient. The smaller the peripheral thresholds the smaller was the distance between the cortical representation of the tested region and the hand in SI. In the amputee dipole data as well as fMRI data revealed a reduction of neuronal activity contra-