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Involvement of the amygdala in explicit memories

To the Editor: The studies conducted by Seeck et al.¹⁻³ afford important insights about temporal lobe structures and memories. We would like to review one particular and important finding of these studies that deserves further comment. We refer to the role of the amygdala in implicit and explicit memories.

The amygdala is involved in emotional aspects of learning and memory.⁴ For several years, the amygdala was thought to be involved only in the encoding of implicit memory processes and emotional "implicit" components of memories at subconscious levels.^{5,6} However, data from Seeck et al.¹⁻³ support the idea that the amygdala is primarily related to explicit memories; they showed the amygdala was activated by awareness of familiar faces but not during the processing of unfamiliar ones.¹ They have now presented data showing that encoding of implicit memories is more frequently related to activation of mid- and inferotemporal neocortical areas than the amygdala or the hippocampus.³ These results, combined with evidence collected in our center^{4,7} and others,⁸ suggest that the amygdala may participate in *explicit* memory processes. For example, in a patient with bilateral amygdala lesions, the encoding of the emotional arousal part of a short history (clearly a declarative memory) was impaired.⁷ In one group of AD patients, pathologic alterations of the amygdala were correlated with impairment of the events recalled (explicit memories) when the patients were asked to remember details of a past earthquake

(a real-life emotional event).⁸ Further, electrophysiologic studies have demonstrated the importance of the amygdala for hippocampal long-term potentiation,⁹ a phenomenon related to neuronal plasticity and memory.¹⁰

To understand better the relations between temporal lobe structures and memory encoding, we believe the role of amygdala in implicit and explicit memories, as well as the concept of emotional memories assumed to be implicit,⁵ needs to be studied.

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Correction

In the article "Unusual EEG pattern linked to chromosome 3p in a family with idiopathic generalized epilepsy" (1998;51:493-498), the captions to figures 2 and 3 should read as follows: *Figure 2. Same pattern as in figure 3, recorded during hyperventilation in three subjects of the same family: II-1 and II-10 (without epilepsy), III-9 presenting with childhood absence epilepsy. Figure 3. Sequences of bilateral, synchronous (although slightly asymmetrical) high-voltage slow waves during hyperventilation in Patient II-6 presenting with epilepsy with random generalized tonic-clonic seizures.*

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Correction

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