Original article

Epileptic Disord 2018; 20 (6): 517-24

Improved decision-making and psychophysiological responses in mesial temporal lobe epilepsy after anterior temporal lobectomy*

Serra Sandor [1], Şakir Delil [2], Selin Yağcı [3], Bektaş Korkmaz [4], S. Naz Yeni [2]

[1] Istanbul Kültür University, Faculty of Science and Letters, Department of Psychology,
[2] Istanbul University, Cerrahpaşa Faculty of Medicine, Department of Neurology,
[3] Istanbul University, Cerrahpaşa Faculty of Medicine, Department of Neurosurgery,
[4] Bursa High Specialty Training and Research Hospital, Department of Clinical Neurophysiology, Istanbul, Turkey

Received March 06, 2017; Accepted October 04, 2018

Epileptic Disorders

- The Somatic Marker Hypothesis (SMH) is an influential model of human decision-making.

- SMH postulates that somatic feedback to the brain enhances decision-making in an advantageous way in ambiguous circumstances.

- This somatic feedback can be measured as autonomic responses and failure to evoke this somatic feedback, which occurs in patients with amygdala lesions, impairs decision-making.

- The purpose of this study was to investigate the decision-making behaviour of mesial temporal lobe epilepsy patients with pre- and post-epilepsy surgery to ascertain whether the decision-making abilities of groups can be explained by means of the generation of somatic feedback responses.

- The findings of this study reveal that the decision-making performance of preoperative patients with unilateral mesial temporal lobe epilepsy was impaired under conditions of ambiguity.

- Pre-operative patients did not generate somatic feedback responses, and produced significantly poor scores overall based on a decision-making task.

- This study also demonstrates that the resection of epileptogenic limbic structures positively affected the generation of somatic feedback responses.

- The findings of the study validate the contribution of mesial temporal lobe structures to decision-making behaviour.

- The findings also highlight the importance of examining the connectivity patterns between the neural structures involved in the decision-making network.