Method: T1-weighted images (repetition time [TR] = 2,000 ms, echo time [TE] = 9 ms, 4 mm – slice thickness, flip angle = 150°) were acquired by 3T Magnetic Resonance Imaging (MRI) in 15 patients (mean age ± standard deviation [SD] 25 ± 1.8 years, 9 male) with pharmacoresistant TLE (disease duration 15.2 ± 8.8 years). Nine patients (60%) presented on MRI signs of hippocampal sclerosis (HS). Thalamic volumes were extracted from Freesurfer analytical pipeline and compared with a group of 15 controls (mean age 27.9 ± 4.0 years, 7 male). There was no difference between the groups regarding age ($p > 0.1$) and sex ($p = 0.46$). Volumes of thalami were correlated with duration of epilepsy.

Results: Patients with TLE presented significantly smaller thalamic volumes both ipsilateral to the seizure focus (7362.1 ± 848.3 mm^3, $p = 0.00005$) and contralaterally (7,186 ± 848.3 mm^3, $p = 0.0037$) in comparison with healthy controls (right thalamus 8088.7 ± 683 mm^3, left thalamus 9360.5 ± 1,382 mm^3). We found a negative correlation between the duration of pharmacoresistant TLE and the volume of ipsilateral thalamus ($r = -0.12$, $p < 0.05$) and contralateral thalamus ($r = -0.13$, $p < 0.05$). There was no correlation between age and thalamic volumes both in patients and controls.

Conclusion: Our data show a bilateral thalamic atrophy in patients with pharmacoresistant TLE, that correlates with the disease duration. The present study provides insight into alterations of extrahippocampal morphology induced by recurrent seizures of pharmacoresistant TLE.

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BILATERAL THALAMIC VOLUME LOSS IN PATIENTS WITH PHARMACORESISTANT TEMPORAL LOBE EPILEPSY WITH AND WITHOUT HIPPOCAMPAL SCLEROSIS

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Purpose: There is growing evidence of extratemporal volume changes associated with pharmacoresistant temporal lobe epilepsy (TLE). The aim of the present study was to characterize the volume changes of thalamus in patients with pharmacoresistant TLE in comparison with healthy controls. Further dependencies of thalamic volumes, seizure focus and duration of epilepsy will be studied.