A retrospective study with prospectively defined data evaluated the pre- and post-surgical PET hypometabolism on the contralateral temporal lobe after ipsilateral temporal lobectomy in 10 patients with bitemporal hypometabolism (BTH) operated between January, 2010 and May, 2018. On PET they compared standard uptake values (SUV) and relative metabolic activities as compared to normal subjects by means of Z-scores of hypometabolism of unresected temporal lobes before and after surgery.

Surgery did not lead to satisfactory seizure outcome and only 3 patients were seizure free. All but one were still using anti-epileptic drug. No significant change was noted on PET hypometabolism related to the contralateral temporal lobe at the last follow-up. Regarding the mean SUV, comparisons showed that the difference with respect to the mesial structures was significant ($p = 0.04$). But lateral cortex showed insignificant difference ($p = 0.21$) before and after surgery. Regarding the mean Z-score, no significant differences were found between both the mesial temporal structures ($p = 0.23$) and lateral temporal cortex ($p = 0.18$).

Surgery does not lead to improvements on PET hypometabolism of the temporal lobe contralateral to the side of surgery and hypometabolism on the contralateral side may be due to structural damage rather than functional deficits secondary to propagation of repetitive seizures. Seizure outcome is not satisfactory and before surgery patients or their next of kin should be informed in detail [1)].

1)
Alizada O, Akgun E, Akgun MY, Kemerdere R, Yeni SN, Tanriverdi T. What happens to temporal hypometabolism contralateral to side of surgery in patients with bilateral temporal hypometabolism? Clin Neurol Neurosurg. 2019 Jan 17;178:7-12. doi: 10.1016/j.clineuro.2019.01.008. [Epub ahead of print] PubMed PMID: 30669002.