PURPOSE: In the nine years since the posterior reversible (leuc) encephalopathy syndrome (PRES) was first described, a number of causes have been under discussion. These not only include arterial hypertension, i.e. hypertensive crises, but also various toxic substances, i.e. immunosuppressive or chemotherapeutic agents, that are responsible for the formation of the symptoms and characteristic MR tomographic brain findings.

MATERIALS AND METHODS: Initial and follow-up MRI examinations of 8 patients were analyzed. All patients had acute neurological symptoms (headaches, seizures, visual disorders and vigilance disturbances) together with a detectable hypertensive crisis.

RESULTS: MRI disclosed increased signal intensity in subcortical and some cortical lesions in all patient FLAIR sequences. These changes were particularly extensive in the posterior circulation (occipital, cerebellum and brain stem) although they were also detected in brain areas supplied by the carotid artery. However, a cytotoxic genesis of the changes was ruled out in each patient by means of a normal DWI. Furthermore, when the blood pressure was normalized, reversibility of the lesions as proof of the diagnosis was detectable.

CONCLUSION: The imaging findings can be typically analyzed as a predominantly posterior distribution of encephalopathic lesions with a high probability of reversibility after lowering blood pressure was
patients suffering from a critical increase in blood pressure with corresponding neurological symptoms. The exact pathophysiology remains unclear, but the cause currently most favored is a vasculopathy of the posterior circulation due to diminished adrenergic autoregulation in combination with a dysfunction of the endothelial cells. In conclusion, we suggest designating this subpopulation from the non-uniform pool of patients with posterior (leuc) encephalopathy as "hypertensive encephalopathy". "Hypertensive encephalopathy" has to be distinguished from "toxic encephalopathy", particularly due to different therapeutic and prognostic consequences.