Cerebral hyperperfusion syndrome: a preventable and treatable cause of seizures

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Introduction: Cerebral hyperperfusion syndrome (triad of headache, seizures and focal neurological deficits), which occurs in 0.2 to 18% post-carotid endarterectomy, is a preventable complication. Case report: A 63 yr old female with hypertension, hyperlipidemia and diabetes mellitus presented with acute left lower limb weakness. Home BP ranged from 104-146/43-94 mm Hg. Neurological examination revealed left lower limb monoparesis. MRI Brain showed acute right parasagittal frontoparietal infarcts. CTA neck showed severe stenosis at the proximal right ICA with tiny right ACA / PCA and watershed infarcts. She underwent successful carotid endarterectomy ten days later. Postop BP ranged from 114-154/65-102 mm Hg. A week later during rehabilitation, she developed recurrent left focal seizures. This was preceded by severe headaches the night before. CTA / CT perfusion revealed increase in perfusion in the right MCA territory secondary to postop hyperperfusion. The operated ICA site was patent and there were no new infarcts. EEG revealed right PLEDS. She was treated with anticonvulsants and BP control was achieved with IV labetalol, captopril and atenolol (kept less than preop BP). To-date she remained well with no complications. Discussion: Cerebral hyperperfusion syndrome can occur immediately postop to one month later. Pathophysiology involves impaired cerebral blood flow autoregulation with elevated systemic hypertension and vasogenic white matter edema. Prevention is key and numerous risk factors (preop, perioperative and postop) for development of this syndrome have been identified. Close hemodynamic monitoring is needed in patients with risk factors. TCD may be used for monitoring. Conclusion: Clinicians should be aware of this potentially preventable post carotid endarterectomy complication.