Revascularization for Chronic Cerebral Ischemia Treatment

Since the introduction of cerebral bypass surgery by Professor Yasargil in 1967, a plethora of literature has been published on direct cerebral revascularization. Against this background, it is remarkable that at present, only three randomized controlled trials (RCTs) exist in the field, both dealing with Extra intracranial bypass surgery surgery for flow augmentation in patients at risk to suffer ischemic or hemorrhagic stroke due to cerebrovascular disease. Next to flow augmentation, the other main indication for bypass surgery is to provide flow replacement following proximal vessel sacrifice for treatment of complex aneurysms or skull base tumors [1)]

Cerebral revascularization was pioneered half a century ago. Gradual improvements in microneurosurgical instruments and training in microsurgical techniques have allowed significant changes that improved outcomes in neurosurgery, extrapolating this knowledge to other neurosurgical diseases (brain tumor, aneurysms, and skull base tumor surgery). But the popularity of cerebral bypass procedures was followed by their decline, given the lack of clear benefit of bypass surgery in chronic cerebrovascular ischemia after the EC-IC bypass studies. Over the last couple of decades, the formidable advance of neuro-endovascular techniques for revascularization has lessened the need for application of open cerebral revascularization procedures, either for flow augmentation or flow replacement. However, there is still a select group of patients with chronic cerebral ischemia, for whom open cerebral revascularization with flow augmentation is the only treatment option available, and this will be the objective of our current review [2)]

1)
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2)
Eastin MT, Chakravarthy VB, Sharafeddin F, Hoss D, Lopez-Gonzalez MA. Current Open Surgical Indications for Revascularization in Cerebral Ischemia. Acta Neurochir Suppl. 2020;127:195-199. doi: 10.1007/978-3-030-04615-6_31. PMID: 31407085.