

The Management Principles of Anterior Circulation Disease (ACD) Do Not Apply to the Posterior Circulation (PCD): James I. Ausman MD PhD [UCLA Medical Center]

Introduction

Introduction and Methods: This presentation is a review of 70 years of literature of PCD.

Results

The Pathology of atherosclerosis in the Posterior Circulation demostrates differences between each vertebral artery, stenosis in the smaller vertebral arteries more than the anteroir circulation vessels leading to earlier symptomatology in the PC than the AC. VB stenosis is 50% higher in the PC than in the AC,. There are less ulceratied plaques found in the PC. Thrombus can occur on these plaques that can embolize, likely more common than cardic emboli. The less the collateral in the PC, the higher the disease process. Occlusion of one vertebral does not assure adequate poserior circulation as is commonly assumed.

Studies on Subclavian Steal prove that PCD symptoms can be hemodynamic. Clinically, PCD has symptoms up to 6 months prior to infarct and a more rapid onselt with greater risk than ACD.

No large clinical studies or Registries have been done without some bias in patient selection. Thus, the natural history of PCD is not known. The National Stroke Guidelines for PCD symptoms are too late to treat the disease. Medical treatment has been based on carotid disease treatment and relies on CT and 3 T MR technologies that is inadequate to show lesions in the PC. Angiography is still the gold standard of diagnosis. Interventional therapy has not been successful in PCD. 7-Tesla MR Angiogrphy will surpass IA angiography in detail but is not commonly available.

Surgical treatment of vertebral origin disease has a 94% success rate.

EC-IC bypass surgery was discarded with the EC-IC Bypass Study in whiich PCD was not even studied. EC-IC bypass for studies for intracranial PCD collectively show 80% improvemment or cure in patients refractory to medical management. All surgically treated patients failed maximal medical therapy, thus, representing a subset of PCD. The longer one waits to defer to surgery, the higher the risks of surgery beccome for PCD. Recent evidence from RCT show that using Quantative MR Angiography flow technology, those with normal flows can be differentiated from those with low flows, who have a higher risk of infarction. Surgery for the latter group normalizes their outcomes.

Conclusions

The Vertebral Basilar Circulation is totally different than the Anterior Circulation Pathologically, in Clinical Presentation, in the use of Diagnostic Angiography and Quantative MR flow technology, in Medical and Surgical Treatments and in Prognosis.

New Diagnostic and Management approaches are necessary for PCD.

Learning Objectives

The Management of Anterior and Posterior Circulation Disease should be different because the AC and PC differ substantially Pathologically, Clinically, Diagnostically, and in Medical and Surgical Treatments

References

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