

10th International Conference on

VASCULAR DEMENTIA

February 22-23, 2018 | Paris, France

Cerebral arteriovenous malformations, hemodynamics, risk of hemorrhage and its relationship with dementia

Felipe Padilla Vazquez

Instituto Nacional de Neurología y Neurocirugía, Mexico

Background & Aim: Cerebral arteriovenous malformations (AVM) are hemodynamic lesions which must be studied as such, to determine the cerebral blood flow, average velocity, the Reynolds number to determine turbulent or laminar flows, to calculate in each one their risk of hemorrhage and their anatomical characteristics in this way make therapeutic decisions. In some lesions with venous hypertension or fistulous nests, they generate a high degree of hyper flow, which can cause perilesional vasculopathy to the AVMs nidus, areas of hypoperfusion that can generate dementia.

Method: We did a retrospective study that included 639 patients with ruptured and un-ruptured AVMs. We proposed a new classification score (1-4 points) for AVM rupture risk using three factors; feeding artery mean velocity (Vm), nidus size and type of venous drainage. We employed descriptive statistics and logistic regression analysis. We analyzed the different type of nidus in each AVM (plexiform, mixto and fistulous), angiopathy data were determined by recruitment in some lesions and their perinidal repercussion. The patient's clinic was determined as well as the study of superior mental functions with a mini-mental test.

Results: A total of 639 patients with cerebral AVMs, 388 (60%) had un-ruptured AVMs and 251 (40%) had ruptured AVMs. Logistic regression analysis revealed a significant effect of Vm (mean velocity), nidus size and venous drainage type in accounting for the variability of rupture odds ($P=0.0001$, $R^2=0.437$), for patients with AVMs. Based in the odds ratios, grades 1 and 2 of the proposed classification were corresponded to low risk of hemorrhage, while grades 3 and 4 were associated with hemorrhage: 1 point OR=0.10795% CI; 0.061-0.188, 2 point OR=0.227 95%, CI; 0.153-0.338, 3 point OR=3.292 95%, CI; 2.325-4.661, and 4 point OR=23.304 95%, CI; 11.077-49.027. We catalog different types of venous drainage, type 1, the anterograde (downstream or normal flow); type 2 the retrograde (upstream or reverse flow) and type 3, retrograde (upstream or reverse flow)+facial venous drainage. We observed that patients who had retrograde flow associated with large AVMs with a fistulous nidus were those that presented dementia data.

Conclusion: This classification is useful and easy to use, and it may allow for the individualization of each cerebral AVM and the assessment of rupture risk based on a model of categorization. The retrograde flow and the fistulous nidus of the AVMs have a high risk of dementia.

Biography

Felipe Padilla Vazquez is a specialist in neurointervention, neuropathic endovascular therapy, cerebrovascular diseases, column surgery, CNS oncological surgery, headaches, neuropathic pain and presently he is a Member of the Mexican Society of Neurological Surgery AC.

neuroendovascularpadilla@hotmail.com

Notes: