

The Angioarchitectural Features Associated with Seizure Presentation in Patients with Brain Arteriovenous Malformations, in Durban South Africa

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Introduction

Management of brain Avms presenting with epileptic seizure remain a controversial issue. Ever since the publications of ARUBA and the Scottish intracranial vascular malformation study which have demonstrated the superiority of medical therapy over interventional therapy in the management of unruptured brain AVM, the role of interventional therapy, even in the management of poorly controlled epilepsy has been largely abandoned. Poorly controlled seizures however, have significant impact on the quality of life of the suffer with associated stigma, particularly in the developing. The studies shows that up to 80% of people with epilepsy reside in the poor socio-economic areas where best medical therapy and compliance are elusive targets.

Methods

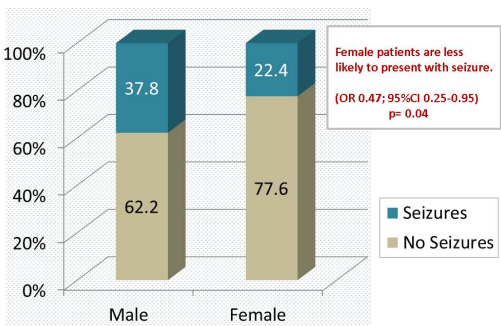
We retrospectively reviewed the clinical notes, radiological and angiographic inagings of patients who were diagnosed with Brain AVM in our center over the period of 10 years, from May 2005 to May 2015. Diagnosis of brain AVM were made using CT-scan,MRI, CT angiography and DSA or the combination of these methods. Baseline clinical characteristics were derived from the clinical notes.Radiological features such as the AVM size and location were determined using axial CT scan or MRI. Angioarchitectural features were determined using DSA.

Results

157 patients were identified. The clinical presentation of seizures occurred in 31.8%. By univariate comparison, Male sex ($P=0.037$),

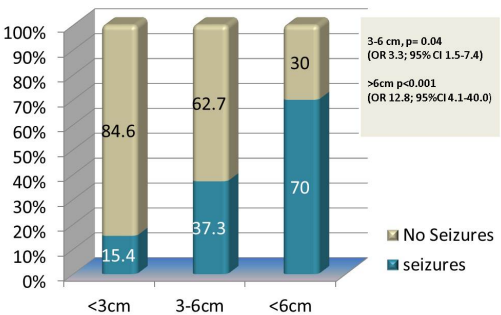
Increase in AVM size ($P=0.001$), supratentorial lobar location ($P=0.001$) and superficial venous drainage ($P=0.001$) risk of seizures.

Associations between Gender and the risk of Seizures in patients with BAVMs



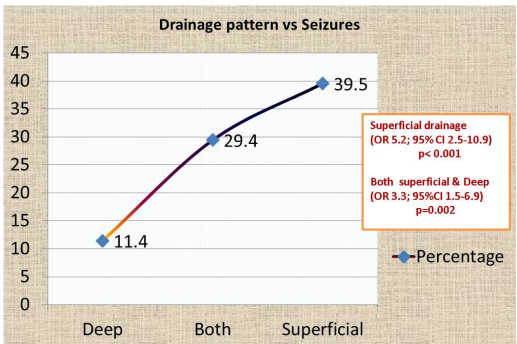
Male Gender was associated with Increased risk of seizures presentations

Associations between Nidus size and the risk of Seizures in BARVs



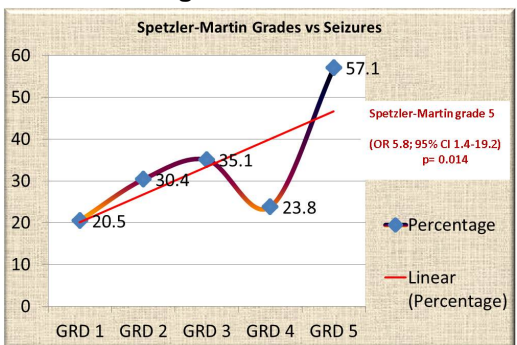
Increase in size >3cm was associated with increased risk of seizures

Graph of association between venous drainage and seizures



AVM with superficial venous drainage had increased risk of seizures

Graph of associations between Spetzler -Martin grades and Seizures



There is increased risk of seizure presentations with increasing S-M grades

Conclusions

Size is the obvious modifiable feature which could be reduced by endovascular embolization in situation where complete eradication could not be achieved.

Learning Objectives

By the conclusion of this session the participants should be able to :

- 1) appreciate the effect of Brain AVM associated epileptic seizures on the quality of life of the sufferer.
- 2) To understand that the best medical therapy available in the developed countries as stated in ARUBA is not readily available in the developing countries and compliance is generally poor.
- 3) discuss in small groups the role of interventional therapy in the management of poorly controlled epilepsy associated with brain AVM amenable to interventional therapy.

References

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- 2) Ding D, Starke RM, Quigg M, Yen C-P, Przbylowski CJ, Dodson BK, Sheehan JP; Cerebral arteriovenous malformation and epilepsy, Part 1: Predictors of seizure presentation, World Neurosurgery (2015), doi: 10.1016/j.wneu.2015.02.039.
- 3) Galletti F, Costa C, Cupini LM, Eusebi P, Hamam M: Brain Arteriovenous malformation and seizures: an Italian study. J Neurol neurosurg psychiatry. 85:284-288, 2014