

Natural History of Familial Versus Non-familial Cavernous Malformation: Systematic Review and Meta-analysis

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Introduction

Cavernous malformation can be divided into familial and non-familial cases. This systematic review is sought to investigate the natural history of cavernoma in familial and non-familial cases.

Methods

We searched MEDLINE, Web of Science, and EMBASE for natural history studies on cavernous malformation until May 2015. We included studies that at least followed up 20 untreated patients (including pre-surgical follow up). Our primary outcomes were calculation and comparison of hemorrhage, seizure, and dynamic changes in familial and non-familial cases. Our secondary outcomes were comparison of familial with non-familial cases. Incidence rate per person year or lesion year of follow up were used to pool the data using fixed or random effect model. We used incidence rate ratio for comparison.

Results

Based on inclusion of 6 studies and 251 individuals, seizure rate was similar in familial and non-familial cases with pooled incidence rate of 1.6%/PY (1.1%-2.3%). With inclusion of 6 studies and 322 individuals, re-seizure rate was higher than seizure rate ($P < 0.001$). New lesion development was higher in familial cases (32.1% versus 0.7% per person year, $P < 0.001$). Signal change ranged from 0.2% to 2.4% per LY in familial cases. In familial cases incidence rate of size change was 8% (5.2%-12.2%) and 1.1% (0.6%-1.6%) per PY and LY respectively.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of follow up in cavernous malformation 2) Describe possible dynamic changes in cavernous malformation lesions 3) Discuss, in small groups incidence rate of the seizure and epilepsy in cavernous malformation and risk factors of that 4) Identify different symptoms of the cavernous malformation and incidence rate of them 5) discuss in small groups the gap in our knowledge regarding the natural history of cavernous malformation that necessitates further well designed future studies.

References

No references

Conclusions

Cavernomas show dynamic changes in familial and non-familial cases. However, this is not certain for non-familial cases based on current evidence. Cavernomas demonstrate low incidence of seizure rate. However, more refinement of the incidence rate based on the location and type of the lesion should be investigated.