Alpha-delta ratio

Delayed cerebral ischemia (DCI) is significantly related to death and unfavorable functional outcome in patients with aneurysmal subarachnoid hemorrhage (SAH). The association between alpha-delta ratio (ADR) on quantitative electroencephalography (EEG) and DCI has been reported in several previous studies, but their results are conflicting. A meta-analysis was conducted to assess the accuracy of ADR for DCI prediction in patients with aneurysmal SAH.

Pubmed and Embase were systematically searched for related records. Study selection and data collection were completed by two investigators. Sensitivity, specificity and their 95% confidence intervals (CIs) were pooled. A summary receiver operating characteristic (SROC) curve was plotted to show the pooled accuracy. Deeks' funnel plot was used to evaluate the publication bias.

A total of five studies were included in this meta-analysis. The pooled sensitivity and specificity of worsening ADR for DCI prediction in patients with aneurysmal SAH were 0.83 (95%CI 0.44-0.97) and 0.74 (95%CI 0.50-0.89), respectively. In addition, the area under the SROC curve was 0.84 (95%CI 0.81-0.87). No obvious publication bias was found using Deeks' funnel plot (P=0.29).

Worsening ADR on quantitative EEG is a reliable predictor of DCI in patients with aneurysmal SAH. Further studies are still needed to confirm the role of quantitative EEG in DCI prediction [1)].

1)
Yu Z, Wen D, Zheng J, Guo R, Li H, You C, Ma L. The predictive accuracy of alpha-delta ratio on quantitative electroencephalography for delayed cerebral ischemia in patients with aneurysmal subarachnoid hemorrhage: a meta-analysis. World Neurosurg. 2019 Feb 27. pii: S1878-8750(19)30493-0. doi: 10.1016/j.wneu.2019.02.082. [Epub ahead of print] PubMed PMID: 30825635.