

- Title** Transcranial Doppler (TCD) ultrasound and cerebral computed tomography perfusion (CTP) for aneurysmal subarachnoid haemorrhage (SAH)
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http://www.moh.gov.my/index.php/database_stores/store_view_page/30/221

Aim

To assess the effectiveness and safety of TCD and cerebral CTP as a non-invasive diagnostic procedure in the management of aneurysmal subarachnoid haemorrhage

Conclusions and results

Limited fair level of evidences retrieved from the electronic databases on the effectiveness and safety of TCD in the management of aneurysmal SAH. Evidence demonstrated that TCD appeared beneficial for the detection and monitoring of angiographic vasospasm of the intracranial arteries due to ruptured aneurysms, especially the middle cerebral artery (MCA). TCD demonstrated good diagnostic value in the detection of cerebral vasospasm after aneurysmal haemorrhage for middle cerebral arteries with high positive likelihood ratio (17) and high specificity, however its diagnostic value for anterior cerebral artery (ACA) was low (positive likelihood ratio <5). The sensitivity in detecting MCA vasospasm varies from 64% to 67% with specificity ranges from 78% to 99%, in ACA vasospasm the sensitivity and specificity ranges from 42% to 45% and 76% to 84%, while in internal carotid artery (ICA) vasospasm the sensitivity was between 25% to 80% with specificity ranges from 77% to 91%. Similarly limited fair level of evidence retrieved on the effectiveness and safety of CTP in the management of aneurysmal SAH which demonstrated that CTP appeared useful in the detection of vasospasm in suspected patients after aSAH.

Recommendations (if any)

Based on the above review, TCD may be recommended to be used for the detection and monitoring of angiographic vasospasm of the intracranial arteries due to ruptured aneurysms, especially the middle cerebral artery, in centers with brain suite facilities in place; and CTP could be used in identifying region of potential brain ischaemia after aSAH by trained personnel.

Methods

Electronic databases were searched, which included PubMed, Medline, Journal @ Ovid full text via OVID, OVID EBM Reviews - Cochrane central register of controlled trials, EBM Reviews - Cochrane database of systematic review, Horizon scanning databases - Centre, Birmingham, Australia and New Zealand Horizon scanning (ANZHSN),

FDA website, MHRA website and from non-scientific database - Google search engine. In addition, a cross-referencing of the articles retrieved was also carried out accordingly to the topic. Relevant articles were critically appraised and evidence graded using US/Canadian Preventive Services Task Force.

Further research/reviews required

Evidence highlighting resources and organisational implications have to be considered before they are being used widely in the management of aSAH patients.

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