Performa indeks vaskular migren dan breath holding index dalam diagnosis migren definitif: kajian terhadap CGRP dan ICAM-1 dalam patofisiologi migren = The performance of migraine vascular index and breath holding index in definitive migraine diagnosis assessment of CGRP and ICAM-1 in pathophysiology of migraine

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Abstrak

ABSTRAK
Prevalensi migren di Indonesia tinggi dan migren menyebabkan disabilitas ketujuh terbanyak di dunia. Diagnosis migren menggunakan kriteria IHS, tetapi angka negatif palsu tinggi 50 . Disfungsi endotel adalah dasar patofisiologi migren, melalui gangguan reaktivitas vasomotor dan inflamasi. Pemeriksaan breath holding index BHI hanya menggunakan stimulus hiperkapnia sementara indeks vaskular migren IVM menggabungkan kombinasi hiperkapnia dan hipokapnia. Akurasi IVM dan peran CGRP serta ICAM-1 dalam patogenesis nyeri kepala migren belum dipahami.Penelitian ini menilai respons vasodilatasi dan vasokonstriksi pembuluh darah intrakranial penderita migren, akurasi alat IVM dibandingkan IHS dan BHI, serta menganalisis perubahan kadar CGRP dan ICAM-1 satu bulan pengobatan.Penelitian menggunakan rancangan potong lintang dan pre-post design. Subjek nyeri kepala primer fase interiktal di Poli Neurologi RSCM yang memenuhi kriteria inklusi dan eksklusi diikutsertakan. Subjek dianamnesis berdasarkan kriteria MS-Q Indonesia, pemeriksaan Doppler transkranial untuk menilai BHI dan IVM pada kedua sisi kepala, dan diberikan obat topiramat dan/atau indometasin sesuai kriteria penelitian. Subjek kontrol 1 bulan untuk menilai respons klinis nyeri kepala. Sampel darah diambil saat awal dan akhir penelitian untuk menilai kadar CGRP dan ICAM-1.Terdapat 104 subjek terkonfirmasi migren dan 24 subjek terkonfirmasi bukan migren. Tidak ada perbedaan karakteristik sosiodemografis: baik usia, jenis kelamin, tingkat pendidikan, dan pekerjaan. Nilai MFV MCA kelompok terkonfirmasi migren lebih rendah bermakna saat menahan napas dibandingkan kelompok terkonfirmasi bukan migren pada sisi ipsilateral dan sisi kontralateral. Pada kelompok terkonfirmasi migren kemampuan vasokonstriksi lebih tinggi bermakna dibandingkan kelompok terkonfirmasi bukan migren pada sisi ipsilateral dan kontralateral.Nilai sensitivitas dan spesifisitas IVM gabungan, BHI serta IHS/MS-Q berturut-turut adalah 94,23 dan 91,67 , 59,63 dan 91,67 , 60,58 dan 95,58 . Tidak ada perbedaan bermakna antara IVM gabungan dengan IVM ipsilateral. Kadar CGRP dan ICAM-1 tidak berbeda bermakna antara kedua kelompok saat awal dan akhir. Pada kelompok terkonfirmasi migren, proporsi kadar CGRP awal tinggi berkorelasi dengan penurunan CGRP akhir. Proporsi kadar CGRP awal tinggi berhubungan bermakna dengan kepositifan IVM.Simpulan: Respons vasodilatasi pembuluh darah MCA penderita migren, lebih rendah dan vasokonstriksi lebih tinggi. IVM terbukti memiliki akurasi baik untuk mendiagnosis gangguan reaktivitas vasomotor pada migren. Kadar CGRP awal tinggi pada migren merupakan prediktor penurunan CGRP dalam 1 bulan. Kata kunci: BHI, CGRP, ICAM-1, IVM, migren, reaktivitas vasomotor
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ABSTRACT
Migraine has a high prevalence in Indonesia and is the seventh cause of disability in the world. Migraine is

diagnosed using the IHS criteria, but the false negative rate is high 50 . Endothelial dysfunction is the underlying pathophysiology of migraine causing impairment of the vasomotor reactivity and inflammation. Breath holding index BHI examination only uses hypercapnia stimulus, while the migraine vascular index MVI uses a combination of hypercapnia and hypocapnia stimulus. The accuracy of MVI and the role of CGRP and ICAM 1 in the pathogenesis of migraine is not fully understood.This study is aimed to assess the vasodilatory and vasoconstriction response of intracranial blood vessels of migraine patients, to know the accuracy of MVI compared to IHS and BHI, and to analyze changes in CGRP and ICAM 1 levels after 1 month of therapy.The study used a cross sectional and pre post design approach. Subjects with primary headache interictal phase who came to the neurology out patient clinic at Cipto Mangunkusumo Hospital RSCM , that met inclusion and exclusion criteria were included in the study. Subjects underwent anamnesis based on the Indonesian version of the MS Q criteria, transcranial Doppler examination to assess BHI and MVI on both sides of the head, and was given topiramate and or indomethacin based on the study 39 s criteria. Subjects were then asked to come for a 1 month follow up to assess the clinical response of headache. Blood samples were taken before and after treatment to assess CGRP and ICAM 1 levels.There were 104 confirmed migraine and 24 confirmed non migraine subjects in the study. There were no differences in sociodemographic characteristics between the two groups based on age, gender, education level, and occupation. The MCA MFV value in the confirmed migraine group is significantly lower compare to the confirmed non migraine group on the ipsilateral and contralateral side, where as the vasoconstriction ability is significantly higher in the confirmed migraine group compare to the confirmed non migraine group on the ipsilateral and contralateral side.The sensitivity and specificity of combined MVI, BHI and IHS MS Q respectively are 94.23 and 91.67 , 59.63 and 91.67 , 60.58 and 95.58 . There was no significant difference between combined MVI with ipsilateral MVI. Levels of CGRP and ICAM 1 did not differ significantly between the two groups before treatment and after treatment. In the confirmed migraine group, a high proportion of CGRP levels before treatment was correlated with CGRP decline after treatment. In addition, a high proportion of CGRP levels before treatment was associated with MVI positivity.Conclusions The vasodilatory response is found to be lower, whereas the vasoconstriction response is higher in the MCA of migraine patients. MVI is proven to have good accuracy in diagnosing impairment of vasomotor reactivity in migraine. A high initial CGRP level in migraine patients is a predictor of a decrease in CGRP within 1 month of prophylaxis therapy.Key words BHI, CGRP, ICAM 1, migraine, MVI, vasomotor reactivity