

# Theses

## Hearing screening using steady state evoked potentials with white noise stimuli (Abstract)\*. Dissertation. Recife 2010.

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**Background:** Early identification of hearing loss and early intervention are crucial to maximize the development of receptive and expressive language abilities and communicative experience. Therefore, the need for universal newborn hearing screening has been ratified by the Joint Committee on Infant Hearing. Objective physiological techniques which are not influenced by sleep or sedation, have to be applied to be able to provide adequate intervention before 6 months of age. Auditory steady-state potentials evoked by amplitude modulated noise or transient stimuli might be useful in providing rapid and objective tests of hearing during screening procedures.

**Objective:** The aim of this study was to evaluate the use of auditory steady-state evoked potentials with white noise stimuli as a screening tool.

**Method:** This study was approved by the Human Research Ethics Committee. The population of the study was composed of 30 newborns. The equipment used in the study was the MASTER. The stimuli was white noise amplitude modulated between 80 and 110 Hz, the electrodes position were: FZ active, M1 reference and M2 ground. All stimuli were presented at 40 dB SPL to 70 dB SPL intensities. The ears were recorded simultaneously.

**Results:** The data was inserted in Microsoft Excel 2002 for Windows program, were analyzed specificity, sensibility and likelihood ratio. For the intensity of 50dB SPL considered as the point of pass-fail, the results for sensibility were 100%, specificity: 100% and LR+: ∞, which shows a near relation between ASSR screening and the gold standard assessment. There was a high fail index (10%), probably because were evaluated high risk children with risk factors for hearing loss (prematurity and low-weight), and the media of age was 28 days, its known that in this age, changes in ear canal-recorded sound levels across the assessment period can be observed, what may reflect differences in ear canal volume, canal resonance and middle ear mechanical properties.

**Conclusion:** This work showed that the use of auditory steady state with white noise in hearing screening is possible, and a alternative tool for hearing screening assessment. Clinical application of the ASSR procedure in

the neonatal population will need to take into account developmental changes occurring in the first weeks of life. More studies have to be made to solidify these findings.

**Key words:** auditory, steady state, hearing screening, white noise.

\*Triagem auditiva por potencial evocado de estado estável com estímulo white noise (Resumo). Dissertação de Mestrado, Universidade Federal de Pernambuco, UFPE (Área: Neurociências). Orientador: Otávio Gomes Lins.

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## Assessment of blood flow in perforating arteries during intracranial aneurysm surgery with intraoperative videoangiography using indocyanine green (Abstract)\*. Thesis. São Paulo, 2010.

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**Introduction:** Perforating arteries are commonly involved during the surgical dissection and clipping of intracranial aneurysms. Occlusion of perforating arteries may be responsible for ischemic infarction and poor outcome.

**Objective:** The goal of this study was to describe the usefulness of near-infrared indocyanine green videoangiography (ICGA) for the intraoperative assessment of blood flow in perforating arteries that are visible in the surgical field during clipping of intracranial aneurysms. In addition we analyzed the incidence of perforating vessels involved during the aneurysms surgery and the incidence of ischemic infarct caused by compromising of these small arteries.

**Method:** Sixty patients harboring 64 aneurysms were surgically treated and prospectively included in this study. Intraoperative ICGA was performed using a surgical microscope (Carl Zeiss Co. Oberkochen, Germany) with integrated ICGA technology. The presence and involvement of perforating arteries was analyzed in the microsurgical field, during surgical dissection, and during the clip application. Assessment of vascular patency after clipping was also investigated. Only those small arteries that were not visible on preoperative digital subtraction angiography (DSA) were considered for analysis.

**Results:** In all cases in which perforating vessels were

found in the microscope field, the ICGA was able to visualize flow. Among 36 cases whose perforating vessels were visible on ICGA, 11 cases (30.5%) presented a close relation between the aneurysm and perforating arteries. In one patient (9.0%), among these 11 cases with close relation, ICGA showed occlusion of a P1 perforating artery after clip application, which led to immediate correction of the clip confirmed by immediate re-establishment of flow visible with ICGA without clinical consequences. Four patients (6.7%) presented with postoperative perforating artery infarct of whom in 3 patients the perforating arteries were either not visible or distant from the aneurysm.

**Conclusion:** The involvement of perforating arteries during clip application for aneurysm occlusion is a

usual finding. Intraoperative ICGA provide visual information with regard to patency of these milimetric vessels, which may avoid their occlusion and further ischemic infarction.

**Key words:** indocyanine green angiography, infarction, intracranial aneurysm, intraoperative angiography, perforating arteries.

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\*Avaliação do fluxo sanguíneo em artérias perfurantes durante a cirurgia de aneurismas intracranianos através da vídeo-angiografia intra-operatória utilizando indocianina verde (Resumo). Tese de Doutorado. Faculdade de Medicina da Universidade de São Paulo (Área de concentração: Ciências/Medicina/ Neurologia). Orientador: Manoel Jacobsen Teixeira.

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