بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

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MONA MAGHRABY

Evaluation of Central Auditory Function in Migraine Patients

Thesis

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Audiology

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Sahar Ibrahim Abdel Ghany Tolba

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List of Abbreviations

Abb.	Full term
ABR	*Auditory brainstem response*
AGP	*Auditory gap detection*
AP	*Auditory processing*
APD	*Auditory Processing Disorder*
ASHA	*American Speech-Language-Hearing Association*
BAEPs	*Brainstem auditory evoked potentials*
CAP	*Central auditory processing*
CAPD	*Central auditory processing disorders*
CGRP	*Calcitonin gene related peptide*
CM	*Chronic migraine*
CNS	*Central nervous system*
CSD	*Cortical spreading depression*
DD	*Dichotic digits test*
DPOAE	*Distortion product otoacoustic emission*
DPT	*Duration pattern test*
DWMH	*Deep white matter hyper intensities*
fMRI	*Functional MRI*
GBD	*Global Burden of Disease*
GIN	*Gap in noise test*
GM	*Grey matter*
ICHD-3	*International classification of headache disorders 3rd-edition*
ICHD-3B	*International classification of headache disorders 3rd-edition beta version*
ICVD-1	*International classification of vestibular disorders*
IHS	*International headache society*
MA	*Migraine with aura*
MMN	*Mismatch negativity*

List of Abbreviations (Cont...)

Abb.	Full term
MoA	*Migraine without aura*
MOCS	*Medial olivary complex*
MRI	*Magnetic resonance imaging*
NI	*Neurogenic inflammation*
NVDT	*Nonverbal dichotic test*
nVNS	*Non-invasive vagus nerve stimulation*
OAE	*Otoacoustic emissions*
OHCs	*Outer hair cells*
ONS	*Occipital nerve stimulation*
PFC	*Pre frontal cortex*
PTA	*Pure-tone audiometry*
Q-SIN	*Quick-Speech In Noise*
SNR	*Signal to noise ratio*
SPG	*Sphenopalatine ganglion*
SPIN	*Speech in noise test*
SSNHL	*Sudden sensorineural hearing loss*
Tdcs	*Transcranial direct current stimulation*
TGV	*Trigeminovascular*
TNC	*Trigeminal nucleus caudalis*
TTH	*Tension type headache*
TVS	*Trigeminovascular system*
VBM	*Voxel based morphometry*
VEMP	*Vestibular evoked myogenic potentials*
VIP	*Vasoactive intestinal polypeptide*
VM	*Vestibular migraine*
VNG	*Videonystgmaography*

INTRODUCTION AND RATIONALE

Migraine is an extraordinary common disabling primary headache disorder. It is an inherited neurovascular disorder that recurs in its typical form as disabling attacks of unilateral throbbing headache, worsened by movements and routine daily activities. It lasts from 4 to 72 hrs associated with nausea, vomiting and increased sensitivity to light and sounds ***(Bartleson et al., 2010).***

In migraine without aura (MoA), headache is commonly unilateral and pulsating, may be associated with nausea and vomiting, and lasts for one or several days. While in migraine with aura (MA), headache is preceded by transient focal neurological symptoms as photophobia and phonophobia. Most migraine attacks start in the brain, as suggested by the premonitory symptoms such as difficulty with speech and reading, increased emotionality, sensory hypersensitivity that in many patients are highly predictive of the attack. Also by nature of some typical migraine triggers such as stress, sleep deprivation, oversleeping, hunger, and prolonged sensory stimulation ***(Hauge et al., 2011).***

Some cochleovestibular symptoms occur commonly in patients with migraine during headache attacks, or in between attacks. These symptoms include, light-headedness, giddy sensation, dizziness, imbalance, motion intolerance, spontaneous attacks of vertigo, photophobia, and tinnitus. On

the other hand, fluctuating hearing loss, sudden deafness, and permanent hearing loss occur in a small percentage of patients with migraine ***(Mumpuc et al., 2001).***

Dizziness or vertigo occurs in 54.5% of patients with migraine. Clinical laboratory vestibular tests in migraine patients with or without dizziness showed a variety of abnormalities including both peripheral and central abnormalities. However, these vestibular abnormalities are more prominent in patients with migraine associated with dizziness ***(Ishizaki et al., 2002). Kolkiela et al. (2017)*** confirmed these results as they described Eelectro-nystagmographic abnormalities (canal paresis and directional preponderance), that were reported in 55% of migraine patients with vertigo.

Central auditory processing (CAP) refers to the efficiency and effectiveness by which the central nervous system (CNS) utilizes auditory information. ***Bellis et al. (2015)*** described central auditory processing disorders (CAPD) as an observed deficiency in one or more of the following auditory behaviors: sound localization and lateralization, auditory discrimination, auditory pattern recognition, temporal aspect of audition **(resolution, masking, integration, ordering),** auditory performance decrements with competing acoustic signals, and auditory performance decrements with degraded acoustic signals. Previous research on migraine patients has reported abnormalities in the auditory brainstem response (ABR).These results indicated impending auditory malfunction