Screening For Central Auditory Processing Disorders in Children with Scholastic Underachievement in Sharkia Governorate

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Summary

Scholastic underachievement is considered a major problem that faces students, parents and teachers. The increasing numbers of underachievers all over the world drove the attention to study different causes of this problem . CAPD is one of the most important causes. Accordingly, this work was design in an attempt to determine the prevalence of CAPD among primary school children with underachievement in Sharkia governorate.

This research was applied to 51 children with scholastic underachievement with an age range from 8-12 years. They were selected from two primary schools. The selection criteria based on failure in one or more of school subjects in the mid or final terms exams. The prevalence of those under achievers was 7.4% out of the total number of children in the two schools (681).

Eight children were excluded from the study (six children with low IQ that they could not understand the test, one child with uncorrected visual problem did not continue and one child did not perform testing from the start).Thus the total number of children how continue the evaluation was only 43 children.

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ARABIC SUMMARY……

List of Abbreviation

ABR	Auditory Brainstem Response.
AEDs	Antiepileptic drugs.
AFT-R	Auditory Fusion Test-Revised.
AFG	Auditory figure ground.
APTO	Auditory Pattern Temporal Ordering
ATP	Auditory Temporal processing
BIBS	Binaural Integration, binaural separation
BKB SIN	Bamford Kowal –Bench Speech in Noise
CAP	Central auditory processing
CANS	Central auditory nervous system
CAPD	Central Auditory Processing Disorders
CHAPPS	Children's Auditory processing performance scale
CS	Competing Sentences
CW	Competing words
DD	Dichotic Digits
DPT	Duration pattern test
ECLB	Evaluation of classroom listening behavior
FW	Filtered words
GFW	The Goldman, Fristoe ,Woodcock
GIN test	Gap In Noise test
IID	Interaural Intensity Difference
ITPA	Illinois test of psycholinguistic abilities
LD	Learning disabilities
LLD	Language- learning disorders
LPFS	Low pass Filtered Speech Test for Children

MAPA	Multiple auditory processing assessment
MLD	Masking Level Difference
MLR	Middle Latency Response
MMN	Mismatch negativity
M-SAAT	Monaural Selective Auditory Attention Test
MSC	Monaural Separation Closure
NVLD	Non verbal learning disability.
OAES	OtoacousticEmissions
OCB	Olivocochlear bundle
PI-PB	Performance-intensity functions for phonetically balanced words
PPS	pitch pattern sequence
Quick SIN	Quick Speech in Noise Test
RGDT test	Random Gap Detection Test
SCAN FW	SCAN Filtered Words
SCAN AFG	SCAN Auditory Figure Ground
SCAN CW	SCAN Competing Words
SIFTER	Screening Instrument for Target Educational Risk
SINCA	Speech in Noise for Children & Adults
SPIN	Speech Perception in noise test
SSI-ICM	Synthetic Sentence Identification with Ipsilateral Competing Message
SSW	Staggered Spondaic Words
TCST	Time compressed sentence test

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Introduction and Rationale

Education is one of the most important aspect of human resource development, every child should have the opportunity to achieve his or her academic potential. Poor school performance should be seen as a symptom reflecting a large underling problem in children. This symptom not only result in the child having low self esteem, but also causes significant stress to the parents (**Karande and Kalkarni, 2005).**

Hearing problems is considered one of the causes of poor school performance in school aged children **(Angeli et al., 2008).** Some of these children have a significant loss in peripheral hearing sensitivity, in others, however, auditory thresholds are within normal limits but the defect is in the processing of auditory information. Children with such problem have been labeled as having central auditory processing disorders **(Jerger and Musiek, 2000).**

Central auditory processing disorders (CAPD) is the significant difficulty in one or more of the following auditory processes: sound localization and lateralization, auditory discrimination, auditory pattern recognition, temporal aspects of audition, auditory performance in competing acoustic signals, and auditory performance with degraded acoustic signals **(ASHA, 2005).**

Musiek et al. (1990) supported the need for the CAPD screening program. They suggested that accurate screening for CAPD could potentially increase parents and teacher's awareness of the disorder, enhance educational planning, reduce anxiety related to the difficulties associated with CAPD, assist in identifying medical issues and reduce the "shopping around" for other disorders.

Screening for APD is a method for identifying children at risk for auditory processing difficulties**. Jerger and Musiek (2000)** identified that screening for APD may include observation, screening by test, screening by questionnaire or any combination of the three.

Bellis (2003) listed audiological options available for CAPD screening, including the SCAN-C Test for Auditory Processing Disorders in Children-Revised **(Keith, 2000)**, the Auditory Continuous Performance Test (ACPT) **(Keith, 1994)**, the Dichotic Digits test **(Musiek, 1983)**, and the Children's Auditory Performance Scale **(Smoski et. al., 1998).** She also noted the need for behavioral observation in both classroom and non-classroom environments. **Bellis (2003)** recognized the need to use several tools in the screening process.

In Egypt, **Soliman et al. (1995)** developed and standardized an Arabic Central test Battery for Children. It includes: Low pass Filtered Speech Test for Children (LPFS), speech perception in

noise test for children (SPIN), Competing Sentence test for children (CS) and Pitch Pattern Sequence (PPS) test**.** Moreover, **Tawfik et al. 2002** developed and standardized the Arabic memory test and **Tawfik et al. 2008** standardized the Arabic Dichotic Digits test.

Kamal et al. (2004) examined 126 children who were scholastic under achievers. They reported that the prevalence rate of possible causes were 38.9%, 13.5%, 11.9% and 35.7% for isolated auditory, combined auditory and non auditory, non auditory and undetermined problems respectively. They also stated that the prevalence of CAPD in children submitted to central auditory evaluation was 40 %. In addition children with CAPD revealed disabilities affecting mainly the auditory separation ability and to lesser extend selective auditory attention, while the auditory closure ability was the least to be affected. The authors stressed the fact that their sample included children with paternal concern about their children performance in addition to students referred for CAPD testing.

The previous study was done in Cairo. This study will be done in sharkia governorate to study central auditory processing disorders in children with poor scholastic achievement. The result of this research may add a piece of information about the prevalence of CAPD in school children in Egypt.

Aim of The Work

To determine the prevalence of central auditory processing disorders among primary school children with underachievement in sharkia governorate.