

# **NEURO-PHYSIOLOGICAL STUDY OF HIGHER AUDITORY FUNCTIONS IN CHILDREN HAVING SPECIFIC LANGUAGE IMPAIRMENT**

Thesis submitted for

fulfillment of M.D. degree in the Phoniatics by

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا

إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صَدَقَ اللَّهُ الْعَظِيمُ

سورة البقرة الآية ٣٢

*To my family  
in appreciation for  
their continuous support*

## **Abstract**

There is much controversy about the extent to which auditory processing deficits are important in the genesis of language disorders, particularly specific language impairment ( SLI ). This study's objective was to provide diagnostic correlates of language assessment, psycholinguistic abilities, ABR and p300 responses in children . The study was carried out on 40 children with specific language impairment and 20 controls. They were all subjected to the language test, Illinois psycholinguistic test with its 7 auditory items as well as an audiological assessment that included ABR and P300 recordings . There was a highly significant statistical difference in p300 amplitude and latency as well as ABR latencies between patients and controls. There were also strong correlations between P300 results and most of tests under study.

**Key words :** Illinois test , P300 , ABR , SLI .

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*Asmaa Ahmed Abdel-Hamid*

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## **LIST OF CONTENTS**

| CONTENTS   | PAGE |
|--|------|
| <b><i>Introduction</i></b>   | 1    |
| <b><i>Aim of the work</i></b>  | 5    |
| <b><i>Review of literature</i></b>   |      |
| <b>Chapter1: SLI</b>   | 6    |
| <b>Chapter 2: Electrophysiological indices of central auditory processing.</b>     | 23   |
| <b>Chapter 3: Central auditory processing in children with SLI</b>                 | 38   |
| <b>Chapter 4: Rehabilitation of SLI with central auditory processing disorder.</b> | 58   |
| <b><i>Materials &amp; methods</i></b>  | 73   |
| <b><i>Results</i></b>  | 90   |
| <b><i>Discussion</i></b>   | 154  |
| <b><i>Conclusions</i></b>  | 178  |
| <b><i>Recommendations</i></b>  | 180  |
| <b><i>Summary</i></b>  | 181  |
| <b><i>References</i></b>   | 185  |
| <b><i>Arabic summary</i></b>   | 217  |

## **LIST OF TABLES**

| <b>TABLE NO</b>  | <b>TITLE</b>   | <b>page</b> |
|------------------|--|-------------|
| <b>TABLE (1)</b> | Comparison of mean of Chronological age between Control Group and children with SLI.             | 93          |
| <b>TABLE (2)</b> | Comparison of mean of auditory parameters, between Control Group and children with SLI.          | 94          |
| <b>TABLE (3)</b> | Comparison of mean of Illinois subtests, between Control Group and children with SLI.            | 106         |
| <b>TABLE (4)</b> | Correlation between P300 latency and different ages of language test among SLI children.         | 118         |
| <b>TABLE (5)</b> | Correlation between P300 latency and different ages of Illinois subtests among SLI children.     | 119         |
| <b>TABLE (6)</b> | Correlation between P300 latency and different ages of Illinois subtests among control children. | 120         |
| <b>TABLE (7)</b> | Correlation between P300 latency and different parameters among SLI children.                    | 121         |
| <b>TABLE (8)</b> | Correlation between P300 amplitude and different ages of language test among SLI children.       | 131         |

|                   |  |     |
|-------------------|--|-----|
| <b>TABLE (9)</b>  | Correlation between P300 amplitude and different ages of Illinois subtests among SLI children.     | 132 |
| <b>TABLE (10)</b> | Correlation between P300 amplitude and different ages of Illinois subtests among control children. | 133 |
| <b>TABLE (11)</b> | Correlation between P300 amplitude and different audi parameters among SLI children                | 134 |
| <b>TABLE (12)</b> | Correlation between Chronological age and subtests of Illinois among cases under study             | 139 |
| <b>TABLE (13)</b> | Correlation between receptive age and subtests of Illinois among cases under study                 | 144 |
| <b>TABLE (14)</b> | Correlation between expressive age and subtests of Illinois among cases under study                | 148 |
| <b>TABLE (15)</b> | Correlation between Language age and subtests of Illinois among cases under study                  | 153 |



## LIST OF FIGURES

| <b>Figure NO</b>   | <b>Title</b>   | <b>page</b> |
|--------------------|--|-------------|
| <b>Figure (1)</b>  | Potential limitations in receptive language processing in children with specific language impairment (SLI).    | 14          |
| <b>Figure (2)</b>  | Potential limitations in speech production in specific language impairment (SLI).                              | 15          |
| <b>Figure (3)</b>  | Auditory passive paradigms in a 5-year-old boy with SLI and a 5-year-old normal boy.                           | 21          |
| <b>Figure (4)</b>  | Average activation recorded by fMRI during a word-generation task in normal subjects and in subjects with SLI. | 22          |
| <b>Figure (5)</b>  | The auditory pathway.  | 24          |
| <b>Figure (6)</b>  | Normal ABR response  | 29          |
| <b>Figure (7)</b>  | Simple odd ball paradigm.  | 33          |
| <b>Figure (8)</b>  | Cortical auditory potentials.  | 36          |
| <b>Figure (9)</b>  | P300 in attending and ignoring states.   | 37          |
| <b>Figure (10)</b> | Grand average auditory ERPs for tones and syllables for SLI and control groups at nine electrodes              | 52          |

|                    |  |     |
|--------------------|--|-----|
| <b>Figure (11)</b> | The graphic representation of the conceptual framework adopted by the ICF. | 68  |
| <b>Figure (12)</b> | Event related potential instrument   | 89  |
| <b>Figure (13)</b> | Sex distribution among cases and controls under study.                     | 92  |
| <b>Figure (14)</b> | Comparison of chronological age between cases and controls under study.    | 94  |
| <b>Figure (15)</b> | Comparison of P300 amplitude between cases and controls under study.       | 99  |
| <b>Figure (16)</b> | Comparison of P300 latency between cases and controls under study          | 100 |
| <b>Figure (17)</b> | Comparison of ABR III latency between cases and controls under study       | 101 |
| <b>Figure (18)</b> | Comparison of speech discrimination between cases and controls under study | 102 |
| <b>Figure (19)</b> | Comparison of auditory reception between cases and controls under study    | 107 |
| <b>Figure (20)</b> | Comparison of auditory association between cases and controls under study  | 108 |
| <b>Figure (21)</b> | Comparison of verbal expression between cases and controls under study     | 109 |

|                    |  |     |
|--------------------|--|-----|
| <b>Figure (22)</b> | Comparison of grammatic closure between cases and controls under study           | 110 |
| <b>Figure (23)</b> | comparison of auditory sequential memory between cases and controls under study. | 111 |
| <b>Figure (24)</b> | comparison of auditory closure between cases and controls under study            | 112 |
| <b>Figure (25)</b> | Comparison sound blending between cases and controls under study                 | 113 |
| <b>Figure (26)</b> | Correlation between P300 latency and auditory association among cases            | 122 |
| <b>Figure (27)</b> | Correlation between P300 latency and verbal expression among cases               | 123 |
| <b>Figure (28)</b> | Correlation between P300 latency and speech discrimination among cases           | 124 |
| <b>Figure (29)</b> | Correlation between P300 amplitude and auditory association among cases          | 125 |
| <b>Figure (30)</b> | Correlation between P300 amplitude and verbal expression among cases             | 126 |
| <b>Figure (31)</b> | Correlation between chronological age and verbal expression among cases.         | 135 |

|                    |   |     |
|--------------------|---|-----|
| <b>Figure (32)</b> | Correlation between expressive age and verbal expression among cases            | 136 |
| <b>Figure (33)</b> | Correlation between chronological age and auditory reception among cases.       | 140 |
| <b>Figure (34)</b> | Correlation between expressive age and auditory reception among cases           | 141 |
| <b>Figure (35)</b> | Correlation between receptive age and auditory reception among cases            | 145 |
| <b>Figure (36)</b> | Correlation between P300 latency and auditory sequential memory among controls. | 149 |
| <b>Figure (37)</b> | Correlation between P300 latency and grammatic closure among controls.          | 150 |

## **LIST OF ABBREVIATIONS**

|                |   |
|----------------|---|
| <b>SLI:</b>    | Specific language impairment                          |
| <b>ADHD:</b>   | Attention deficiency hyperactivity disorder           |
| <b>BM:</b>     | Backward masking                                      |
| <b>ERP:</b>    | Event related potential                               |
| <b>ITPA:</b>   | Illinois's test of psycholinguistic abilities         |
| <b>WISC-R:</b> | Wechsler Intelligence Scale for Children Revised      |
| <b>SRT :</b>   | Speech reception threshold                            |
| <b>MMN:</b>    | Mismatch negativity                                   |
| <b>Hz:</b>     | Hertz   |
| <b>S/N:</b>    | Signal to noise ratio                                 |
| <b>FFW:</b>    | The Fast ForWord – Language program                   |
| <b>EEG:</b>    | Electroencephalographic                               |
| <b>ART:</b>    | Auditory Repetition Test                              |
| <b>ICC:</b>    | Intra-class correlation coefficients                  |
| <b>CV:</b>     | Consonant–vowels                                      |
| <b>TLD :</b>   | Typical language development                          |
| <b>PN:</b>     | Processing negativity.                                |
| <b>ICD-10:</b> | The International Classification of Diseases-10.      |
| <b>DSM-IV:</b> | Diagnostic and Statistical Manual of Mental Disorders |
| <b>G-SLI:</b>  | Grammatic Specific language impairment .              |

**mv:** millivolt.

**msec:** millisecond.

**SD:** Standard deviation.

**FM:** Frequency modulators.

**ICF:** International Classification of Functioning, Disability and Health

# INTRODUCTION