



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكروفيلم

# بسم الله الرحمن الرحيم



**MONA MAGHRABY**



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التوثيق الإلكتروني والميكروفيلم



# شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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التوثيق الإلكتروني والميكروفيلم

# جامعة عين شمس التوثيق الإلكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأقراص المدمجة قد أعدت دون أية تغييرات



## يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



**MONA MAGHRABY**



# **Neurocognitive Functions and Psychosocial Assessment in Children with Chronic Renal Disease**

Thesis

*Submitted for partial fulfillment of M.D. Degree in **Pediatrics***

Presented by

***Noha Osama Mohammed***

*M.B., B. Ch., M. Sc.*

Supervised by

**Prof. Dr. Sawsan Sayed ElMoselhy**

*Professor of Pediatrics*

*Faculty of Medicine, Ain Shams University*

**Dr. Reham Mohammed Elhossiny AbdelBasir**

*Assistant Professor of Pediatrics*

*Faculty of Medicine, Ain Shams University*

**Prof. Dr. Hossam Moussa Sakr**

*Professor of Radiology*

*Faculty of Medicine, Ain Shams University*

**Dr. Mohammed Abdelmonaem Sharaf**

*Lecturer of Pediatrics*

*Faculty of Medicine, Ain Shams University*

**Dr. Mena Elerian Youssef Ekladious**

*Lecturer of Radiology*

*Faculty of Medicine, Ain Shams University*

*Faculty of Medicine - Ain Shames University*

2020

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

# قالوا

لسببناك لا نعلم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدق الله العظيم

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# ABSTRACT

**Background:** Chronic kidney disease (CKD) in children is a major global health problem. They are at risk for developing cognitive functions impairment more than adults due to the development of CKD during crucial stages of brain development.

**Study Aim:** To assess the neurocognitive status in children with CKD stages 2-5 and their educational outcomes.

**Methods:** A cross sectional study was conducted on 75 patients with CKD, & 25 controls. Neurocognitive status was assessed using WIQ (Wechsler Intelligent Quotient), Benton Visual Retention Test (BVRT), computerized Wisconsin Card Sorting Test (WCST) and structural MRI Brain.

**Results:** Children with CKD had significantly lower total, verbal, performance IQ as compared to healthy controls. CKD patients had a disability at visual memory and attention denoted by worse performance at BVRT. Scores of CKD patients at WCST were worse than the control, thus denoting a disability at brain executive function. For MRI white matter lesions were reported in 2 patients on regular hemodialysis.

**Conclusions:** Children with CKD may have average to low-average cognition compared with the general population, with significant deficits at educational outcomes, visual memory, attention, & executive function.

**Limitations:** We could not assess the longitudinal change in cognitive functions with advancing CKD, as the study was a cross sectional one with relatively small sample size.

**Implication of Practice:** This study highlighted the importance of implementing changes in the routine care of children with CKD encouraging better nutrition and educational programs.

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# *List of Abbreviations*

| <b>Abb.</b>        | <b>Full term</b>   |
|--------------------|--|
| <i>AAS</i> .....   | <i>Anterior Attentional System</i>                               |
| <i>ACEI</i> .....  | <i>Angiotensin Converting Enzyme Inhibitors</i>                  |
| <i>AR</i> .....    | <i>Arithmetic</i>  |
| <i>ARB</i> .....   | <i>Angiotensin receptor blocker</i>                              |
| <i>ASL</i> .....   | <i>Arterial Spin Label</i>                                       |
| <i>AV</i> .....    | <i>Arteriovenous</i>   |
| <i>BBB</i> .....   | <i>Blood Brain Barrier</i>                                       |
| <i>BD</i> .....    | <i>Block Design</i>  |
| <i>BP</i> .....    | <i>Blood pressure</i>  |
| <i>BRIEF</i> ..... | <i>Behavior Rating Inventory of Executive<br/>Function</i>       |
| <i>BUN</i> .....   | <i>Blood Urea Nitrogen</i>                                       |
| <i>BVRT</i> .....  | <i>Benton Visual Retention Test</i>                              |
| <i>CAKUT</i> ..... | <i>Congenital Anomaly of Kidney and Urinary<br/>Tract</i>        |
| <i>CBC</i> .....   | <i>Complete Blood count</i>                                      |
| <i>CBF</i> .....   | <i>Cerebral blood flow</i>                                       |
| <i>CD</i> .....    | <i>Coding</i>  |
| <i>CDI</i> .....   | <i>Children Depression Inventory</i>                             |
| <i>CI</i> .....    | <i>Confidence Interval</i>                                       |
| <i>CKD</i> .....   | <i>Chronic kidney disease</i>                                    |
| <i>CMAS</i> .....  | <i>Children's manifest anxiety scale</i>                         |
| <i>CNS</i> .....   | <i>Central nervous system</i>                                    |
| <i>CO</i> .....    | <i>Comprehension</i>   |
| <i>CSF</i> .....   | <i>Cerebrospinal fluid</i>                                       |
| <i>CVVH</i> .....  | <i>Continuous veno-venous hemofiltration</i>                     |
| <i>DS</i> .....    | <i>Digit Span</i>  |
| <i>DSM</i> .....   | <i>Diagnostic and Statistical Manual of Mental<br/>Disorders</i> |
| <i>DWI</i> .....   | <i>Diffusion weighted image</i>                                  |