بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

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15 – 25c and relative humidity 20-40 %

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بالرسالة صفحات

لم ترد بالأصـــل

Motor evoked potential and somatosensory evoked potential in cerebral palsy

Thesis

Submitted in partial fulfillment
Of master degree of
Neurology and Psychiatry

By

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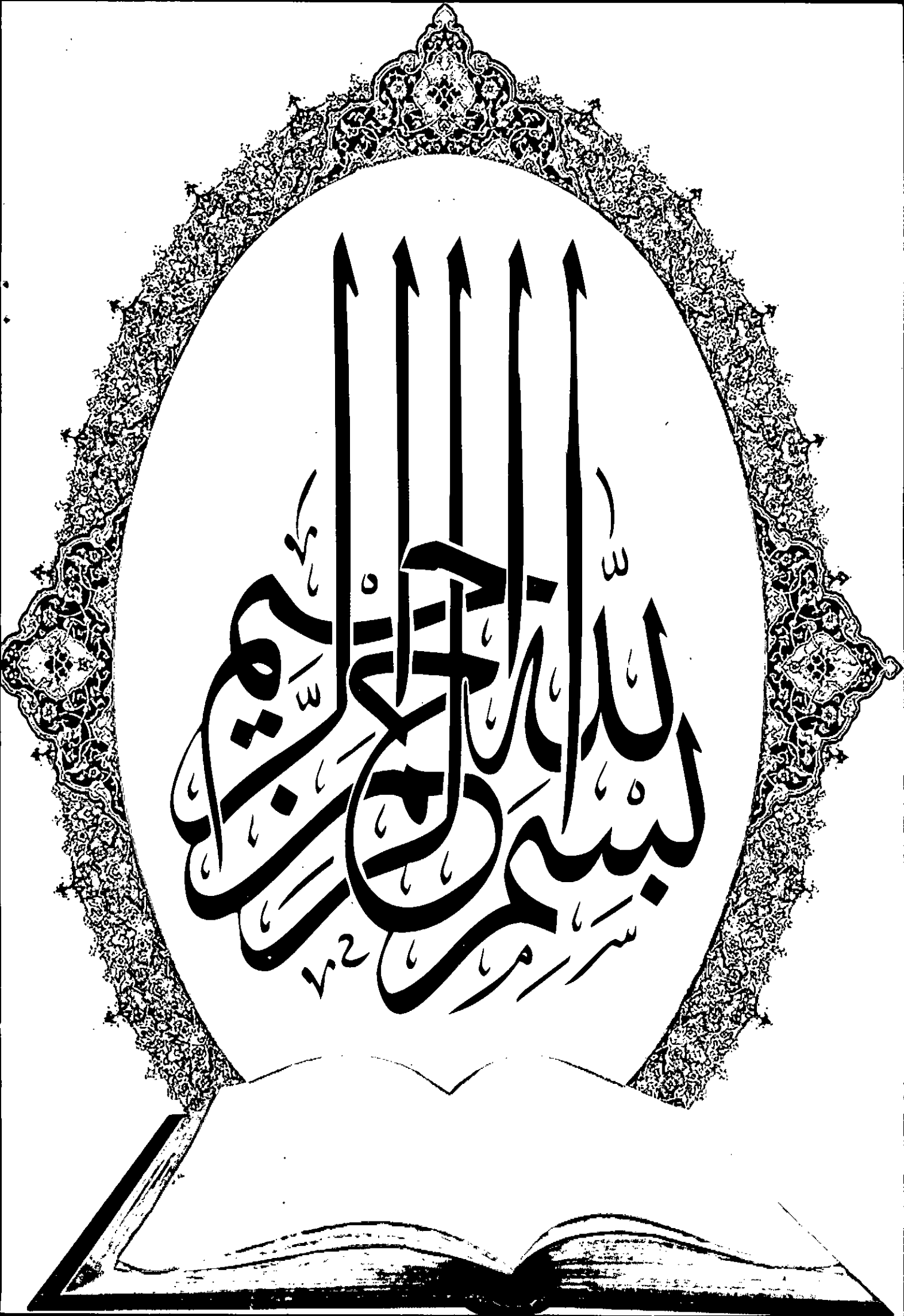
بسم الله الرحمن الرحيم

Dedication

To

My Mother, the great heart

My Father, the great teacher

Acknowledgment

This work would never be crowned by success without the blessing of **ALLAH,** To whom my loyalty will remain forever beg and any compromise.

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Introduction

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Cerebral palsy is a static non progressive motor disability that occurs at birth or early childhood as a result of injury to neuromotor components of the central nervous system (**Dzienkowshi et al, 1996**).

The symptoms of CP fall into four groups:

*Symptoms due to loss of selective motor control.
*Symptoms due to abnormal muscle tone.
*Symptoms due to imbalance between agonists and antagonists.
*Symptoms of impaired balance **(Russman et al, 1997).**

Evoked potentials (EPs) are neurophysiological investigations to demonstrate the existence but not the type of the lesion in the central nervous system (CNS) and are used as a screening method for neuropediatric diseases **(Gorke, 1986)**.

Profound knowledge of the neurophysioplogical conditions producing EP alternations allows basic conclusion that can not be gained or replaced by other investigations.

Somatosensory evoked potential (SEP) is one of the most sensitive method of evoked potentials and its application in neonates and infants has been given increased attention in recent years as they can provide a non invasive objective method of evaluating the central and peripheral nervous system and can give information about the maturation of the human afferent sensory system. This test is particularly more useful than the other modalities i.e. visual evoked potential (VEP) or auditory brain stem evoked Potential (ABEP), because the clinical

sensory neurological examination is often difficult in infants and young children (**Zhu et al, 1986 and Laureau et al, 1988).**

Transcranial magnetic stimulation (TMS) was originally described by **Barker et al (1985)**. Then its clinical use has broadened within recent years because it is a non-invasive technique **(Thompson et al, 1988**).

Furthermore, it is a safe method for stimulating the intact human motor cortex and thereby assessing conduction in central motor pathway (**Eisen &Shytbel, 1990).**

In children, TMS is painless and cause little discomfort, so it is used to assess the normal development **(Yasuhara, 1999**). **Muller et al (1997)** had used TMS to evaluate the maturation of the corticospinal tract in children and to demonstrate maturation of ipsilateral corticospinal tract in CP patients in the first decade as a part of normal ontogeny.

*Aim of the work:

To study motor evoked potentials and somatosensory evoked potentials in cerebral palsy and their correlations with the clinical picture and brain pathology as assessed by CT scan.

Review of Literature

Cerebral Palsy

Definition

Cerebral palsy is a chronic disease that was first described by **William Little in 1843** an orthopedic surgeon and it was defined as " a non progressive disorder of movement and posture due to defect or lesion in the immature brain **(Bax,1964).** However, **Nelson (1989)** considered CP as a group of disorders characterized by abnormal control of movement or posture of early onset in absence of recognized underlying progressive disease.

Epidemiology

* **Incidence:-**

The incidence of CP i.e. the number of new cases (numerator) occurring during a certain time period in a defined population at risk (denominator) has varied in different series according to the criteria for selection, time and community studied **(Brett, 1997)**.

The figures have always differed from one country to another but in general, the incidence of CP varies from 1.5 –3/ 1000 live births for moderate to severe cases. Prospective studies which included mild cases, had a higher estimate of incidence than service registers severely affected children **(Hagberg et al, 1975 & Brown and Gfulford, 1984).**

Alberman (1984) had stressed on the disadvantage of studing the incidence in the cerebral palsies, since they are etiologically heterogeneous and arising at different stages in fetal and infant development meaning that neither the numerator nor the denominator is accurately known.