



Comparative Study of Different treatment Methods of Rehabilitation in Cerebral Palsy

*A Proposal For Fulfillment Of PhD Degree In Childhood
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

لسبب انك لا تعلم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

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List of Abbreviations

Abb.	Full term
<i>2-3 DPG</i>	<i>2,3 Diphosphoglycerate</i>
<i>6-PGD</i>	<i>6-phosphogluconate dehydro-genase</i>
<i>ACE</i>	<i>Angiotensin-converting enzyme</i>
<i>AHT</i>	<i>Autohaemotherapy</i>
<i>BOEX</i>	<i>Quasi -Total body exposure</i>
<i>CAM</i>	<i>Complementary and alternative medicine</i>
<i>CP</i>	<i>Cerebral palsy</i>
<i>CPD</i>	<i>Citrate-phosphate dextrose</i>
<i>EBOO</i>	<i>Extra corporeal blood circulation against oxygen -ozone</i>
<i>EPA</i>	<i>Environmental Protection Agency</i>
<i>FDA</i>	<i>Food and Drug Administration</i>
<i>G-6-P-D</i>	<i>Glucose-6 phosphate dehydrogenase</i>
<i>GM-CSF</i>	<i>Granulocyte-monocyte colony stimulating factor</i>
<i>HBOT</i>	<i>Hyperbaric oxygenation therapy</i>
<i>IV</i>	<i>Intravenous</i>
<i>LDH</i>	<i>Lactate dehydrogenase</i>
<i>LOPs</i>	<i>Lipid oxidation products</i>
<i>NAC</i>	<i>N-acetylcysteine</i>
<i>NO</i>	<i>Nitrogen monoxide</i>
<i>O₃-AHT</i>	<i>Ozonated autohemotherapy</i>
<i>OSHA</i>	<i>Occupational Safety and Health Administration</i>
<i>OT</i>	<i>Occupational therapy</i>

List of Abbreviations cont...

Abb.	Full term
<i>PK</i>	<i>Pyruvate kinase</i>
<i>Po2</i>	<i>Partial pressure of oxygen</i>
<i>PT</i>	<i>Physiotherapy</i>
<i>PUFAs</i>	<i>Polyunsaturated fatty acids</i>
<i>PVC</i>	<i>Polyvinyl chloride</i>
<i>RI</i>	<i>Rectal insufflation</i>
<i>ROS</i>	<i>Reactive oxygen species</i>
<i>SC</i>	<i>Subcutaneous</i>
<i>SOD</i>	<i>Superoxide dismutase</i>
<i>TB</i>	<i>Traumatic brain injury</i>
<i>TNFα</i>	<i>Tumor necrosis factor</i>
<i>UV</i>	<i>Ultraviolet</i>
<i>VEGF</i>	<i>Vascular endothelial growth factors</i>

ABSTRACT

Background: Cerebral palsy is a major health problem caused by brain damage during pregnancy, delivery, or the immediate postnatal period. Cerebral palsy (CP) is generally considered as a nonprogressive condition. The goal of any treatment program for cerebral palsy is to maximize function and minimize the development of secondary problems.

Objective: The aim of this study is to compare different protocols management in cerebral palsy.

Subjects and Methods: The study included 120 patients with CP of both genders, between 4 and 8 years of age, attending the Special Needs Care Center of the Faculty of Postgraduate Childhood Studies, Ain Shams University. The available patient's records used to select the sample, as well as written informed consents were obtained from parents.

Results: Physiotherapy (PT) and occupational therapy (OT) are the corner stone of management children with cerebral palsy, hyperbaric oxygen therapy HBOT have a positive effect in management children with Cerebral palsy CP more than other management protocols such as acupuncture and ozone.

Conclusion: Acupuncture and ozone also have a positive effect on children with CP but less than hyperbaric oxygenation therapy HBOT.

Keywords: Cerebral palsy, hyperbaric oxygen therapy, ozone, acupuncture

INTRODUCTION

Cerebral palsy (CP) describes a group of permanent disorders of development, movement and posture, resulting in activity limitation. Cerebral palsy (CP) is a nonprogressive disease that presents as a disorder of motion and posture following brain injury during a period of development (*Asl et al., 2015*).

The motor disorders of cerebral palsy are the most common complication and usually accompanied by other disturbances of sensation, perception, cognition, communication, behaviour, epilepsy and by secondary musculoskeletal problems (*Eliasson et al., 2006*).

Also, CP is generally considered as a nonprogressive condition resulting from neurological injury in the antenatal or perinatal period. Perinatal hypoxic-ischemic insult leads to cellular necrosis, neuronal inactivation and cerebral white matter injury are the most common causes of severe neurological handicaps in children with CP (*Efrati and Ben-Jacob, 2014*).

palsy (CP) is a very common neural system development disorder that can cause physical disability in human (*Zheng et al., 2012*).

Cerebral palsy is a major health problem caused by brain damage during pregnancy, delivery, or the immediate postnatal

period. Perinatal stroke, intraventricular hemorrhage, and asphyxia are the most common causes of neonatal brain damage. Periventricular white matter damage (periventricular leukomalacia) is the predominant form in premature infants and the most common antecedent of cerebral palsy (*Titomanlio et al., 2011*).

Cerebral palsy (CP), a static, nonprogressive disorder caused by brain insult or injury in the prenatal, perinatal, and postnatal time period, is the major developmental disability affecting function in children. It is characterized by the inability to normally control motor functions, and it has the potential to have an effect on the overall development of a child by affecting the child's ability to explore, speak, learn, and become independent. Effective management can improve the quality of life for the child and family (*Jones et al., 2007*).

In developed countries, the overall estimated prevalence of CP is 2-2.5 cases per 1000 live births (*Majnermer, 2004*).

In the developing world, the prevalence of CP is not well established but estimates are 1.5-5.6 cases per 1000 live births (*Jones et al., 2007*).

The prevalence of CP among preterm and very preterm infants is substantially higher (*Vincer et al., 2006*).

CP affects persons of all races. Lower socioeconomic status is associated with increased risk for CP (*Dolk, 2001*). Male sex may be a risk factor for CP (*Jones et al., 2007*).