Screening of Developmental Dysplasia of the Hip in Neonates with Breech Presentation

Thesis

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(Child Health and Nutrition)

By

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معهد الدراسات العليا للطفولة
قسم الدراسات الطبية

مسح تشخيصى لتشوه نمو مفصل الفخذ في الأطفال حديثى الولادة ذوي وضع المقعدة

خطة دراسة توطئه للحصول على درجة الدكتوراة الفلسفية فى دراسات الطفولة
القسم الطبى (صحة و تغذية الطفل) معهد الدراسات العليا للطفولة

مقدمة من

الطبيبة / سمر محمد عزالدين محمود المكاوى

ماجستير طب الأطفال – جامعة عين شمس

تحت إشراف

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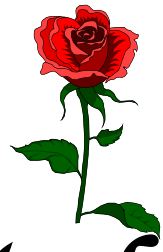

TO

My Mother Soul ♥

My Father ♥

My Dear Uncle Dr.Saied ♥

My Brother ♥

My Sisters ♥

My Niece Salma ♥

My Nephews ♥

And My Dear Friend

Amany ♥

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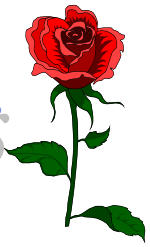

بسم الله الرحمن الرحيم

*In the name of **ALLAH**, the most beneficent, the most merciful.*

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List of Abbreviations

AAP : American Academy of Paediatrics.

ACR : American College of Radiology

AAOS : American Academy of Orthopedic Surgeons

AIUM : American Institute of Ultrasound in Medicine

AVN : Avascular Necrosis.

CDH : Congenital dislocation of the hip.

C.S. : Caesarean section.

DCI : Dynamic coverage index

DDH : Developmental Dysplasia of the hip.

Exam. : Examination

FH : Family history.

Fig. : Figure

GA : Gestational age

mos. : Months

NICU : Neonatal Intensive Care Unit.

No. : Number

NVD : Normal Vaginal Delivery.

PG : Primigravida.

SMAC : Standing Medical Advisory Committee

USG : Ultrasonography US : Ultrasound

USPSTF : United States Preventive Services Task Force

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Introduction

The term Developmental dysplasia of the hip **(DDH)** describes a range of hip abnormalities affecting the newborn in which the femoral head and acetabulum are in improper alignment or grow abnormally, or both ***(Shipman, 2006)***.

Clinical instability of the hip is the traditional hallmark of the disorder, but the definition of DDH also includes hips with radiological abnormalities of the femoral head or acetabulum that may or may not be associated with joint instability ***(Dezateux, 2007)***.

DDH is one of the most common congenital malformations and it is an important cause of childhood disability ***(Gelfer and Kennedy, 2008).*** Uncorrected DDH is associated with long term morbidity such as gait abnormalities, chronic pain and degenerative arthritis ***(Shorter et al, 2011)***.

The exact incidence of DDH is difficult to determine because of a discrepancy in definition of the condition, type of examination used and different levels of skills of clinicians. The international incidence ranges from ***as low as 1 per 1,000 to as high as 34 per 1,000.*** Higher incidences are reported when ultrasonography is also used in addition to clinical examination ***(Noordin et al, 2010)***.

The precise cause of DDH is unknown, with a combination of genetic and environmental influences associated with DDH and hip dislocation including family

history, oligohydramnios, vaginal delivery, breech presentation and female gender ***(Sewell et al, 2009)***.

Among these, breech presentation was found to be one of the most important ***(Yau et al, 2012).*** Breech presentation has been explained as a risk factor for DDH in terms of the intrauterine posture involved, in which leg movement is restricted and in which knee extension can stretch the hamstring and thereby increase the possibility of hip dislocation ***(Dogruel et al, 2008).*** The American Academy of paediatrics (AAP) now recommends ultrasound DDH screening of all female breech babies ***(POSNA 2013).***

The early diagnosis of DDH is vital as timely initiation of appropriate treatment minimizes the associated risk of early osteoarthritis ***(Clarke et al, 2012)***. Early screening has the potential to prevent long term hip dysplasia and arthritis requiring hip replacement ***(Shorter et al, 2011)***. No first-line method exists for diagnosing DDH during the newborn period. However, a careful physical examination is recommended as a screening tool, particularly for high-risk infants ***(Storer et al, 2006)***.

Ultrasound scanning is the investigation of choice to evaluate DDH in infants younger than six months of age and it is useful to diagnose more subtle forms of the disorder when clinical examination is equivocal. It is also the only imaging modality that enables a three dimensional real-time image of a neonate's hip ***(Noordin et al, 2010)***.

There is general consensus that early detection of DDH improves outcome. When detected early the soft tissues are