بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

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Cannulated Screws versus Dynamic Hip Screws for Treatment of Femoral Neck Fractures:
A Systematic Review and Meta-Analysis

Submitted for Partial Fulfillment of Master Degree
in **Orthopedic Surgery**

By

Mahmoud Hesham Mahmoud Ahmed
M.B.B.,Ch., Faculty of Medicine, Ain Shams University

Supervised by

Prof. Dr. Abd Elrady Mahmoud Abd Elrady
Assistant Professor of Orthopedic Surgery
Faculty of Medicine, Ain Shams University

Dr. Ahmed Mohamed Nageeb Mahmoud
Lecturer of Orthopedic Surgery
Faculty of Medicine, Ain Shams University

Faculty of Medicine
Ain Shams University
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Abb.	Full term

AVN .....*Avascular Necrosis*

CI.....*Confidence interval.*

CS .....*Cannulated Screws*

DHS .....*Dynamic Hip Screw*

DVT .....*Deep Venous Thrombosis*

MCS .....*Mutiple Cannulated Screws*

NR.....*Not reported*

OR .....*Odds Ratio*

SE.....*Standard error*

SMD .....*Standard Mean Difference*

INTRODUCTION

Femoral neck fracture has always been 'the unsolved fracture' as far as treatment and results are concerned. Most femoral neck fractures occur in elderly individuals where much attention has been focused due to high risk of mortality and morbidty [(1)].

A fracture of the femoral neck in a young adult differs from the same fracture in an older patient in many respects. They account for only (2-3)% in young population where they usually result from high energy trauma [(2)], while in old patients >65 yrs they account for (7.4%) and increasing every year[(3)].

Treatment options for femoral neck fractures include arthroplasty, Proximal femoral Nail[(4)] and targon plating[(5)],with MCS and DHS were the most commonly used.

Cannulaed Screws are one of the most commonly used implants for the treatment of femoral neck fractures,but they proved to be biomechanically weak[(7,8)] in terms of anchorage, holding[(7,8)] and compression of the fracture site[(6,7)], while DHS is better in those functions[(7,8)], but which method better in clinical and radiological outcomes is yet to be determined.

This systematic review and meta-analysis aims to compare the clinical& radiological outcomes of femoral neck fractures treated with Dynamis Hip Screw or Cannulated screws.

Aim of the Work

The aim of the study is to review the literature to compare the clinical and radiological outcomes of Dynamic Hip Screw and Cannulated screws results in treatment of femoral neck fractures.

REVIEW OF LITERATURE

Introduction

Femoral neck fractures are a common injury in the elderly population and typically require hospitalization and surgical intervention. The decision regarding the specific treatment of an individual patient is multifactorial and complex. There are surgical and nonsurgical options depending on the fracture characteristics, the overall health states of the patient, the patient's pre-fracture mobility, and the discretion of the treating surgeon[(9)].

Thus, in clinical practice, the treatment of hip fractures continues to depend upon shared decision-making involving discussion among the patient, the patient's family, and the orthopaedic surgeon. Nonsurgical management remains reserved primarily for those patients who are deemed unfit for surgery because of excessive medical comorbidity[(9)].

The treatment of hip fractures has increased importance because of the high mortality and morbidity associated with this injury. Available data suggest that one-year mortality rates approach 30% and that 25% of patients who survive a hip fracture will require long-term nursing home placement [(10).]

Risk Factors

There are many risk factors for femoral neck fractures, including female gender, low bone density, and reduced

mobility. Fracture risk increases dramatically with age, with the majority of fractures occurring in older white women secondary to low-energy falls. In younger patients, high-energy trauma is responsible for most of these injuries[11].

Classifications

Femoral neck fractures initially were classified by Sir Astley Cooper in 1823 as either intracapsular or extracapsular, which he felt had prognostic implications[12].

Biomechanical classification was presented later in 1935 [13].

The Pauwel classification, as it has come to be called, stratified fractures in three groups based on inclination of the fracture line relative to the horizontal: Type I, less than 30°; Type II, 30° to 50°; and Type III, greater than 50°. As the angle of inclination increases, the forces transition from being compressive to shearing[14].

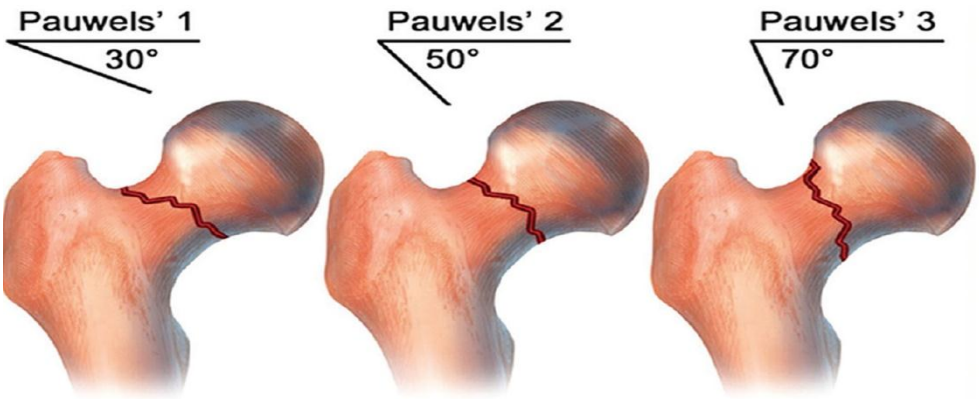

Figure 1: An increase in vertical shearing forces results in higher risks of displacement, postreduction nonunion, and failure of fixation[13].

In 1961, Robert Symon Garden, a British orthopaedic surgeon with a focused interest in the femoral neck, described a more-comprehensive classification. The Garden classification incorporates displacement, fracture completeness, and relationship of bony trabeculae in the femoral head and neck. Gardens' originally reviewed 80 patients with femoral neck fractures, which he classified in Types I to IV, and he followed these patients for at least 12 months postoperatively. He found that Types I and II fractures had a 100% union rate. Types III and IV had lower union rates of 93% and 57% respectively[15].

Garden's classification is based on AP radiographs of the hip (Table 1). Four types of fractures are included, incomplete and valgus impacted (Type I, Fig.1A), complete and nondisplaced (Type II, Fig.1B), complete and partially displaced (Type III, Fig. 1C), and complete and fully displaced (Type IV, Fig. 1D)[15].

Table 1: Garden's classification for femoral neck fractures [15].

Type	Description	Nondisplaced or displaced
I	Valgus impacted incomplete fracture, disruption of the lateral cortex while the medial cortex is preserved	Nondisplaced
II	Complete fracture	Nondisplaced
III	Complete fracture, partial displacement indicated by change in angle of the trabeculae	Displaced
IV	Complete fracture, complete displacement leading to parallel orientation of the trabeculae	Displaced