Risks and Benefits of Urinary Catherization in Elective Cesarean Section:

A Randomized Controlled Trial

Thesis

Submitted for Partial Fulfillment of Master Degree

In **Obstetrics and Gynecology**

By

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Dina El-gammal

List of Contents

List of Abbreviations

ABU	.....	Asymptomatic bacteriuria
ACOG	.....	American College of Obstetricians and Gynecologists
AgNPs	.....	Silver nanoparticles
APUR	.....	Acute postpartum urinary retention
CAUTIs	.....	Catheter-associated UTIs
CD	.....	Cesarean delivery
CDC	.....	Centers for Disease Control and Prevention
CDMR	.....	Cesarean delivery on maternal request
CMS	.....	Centers for Medicare and Medicaid Services
CS	.....	Cesarean section
DVT	.....	Deep venous thrombosis
FIGO	.....	International federation of obstetricians and gynecologists
H_2O_2	.....	Hydrogen peroxide
HAIs	.....	Health care-associated infections
HICPAC	.....	Healthcare Infection Control Practices Advisory Committee
ICU	.....	Intensive Care Unit

List of Abbreviations (Cont...)

NICE	.....	National Institute for Health and Care Excellence
NICU	.....	Neonatal Intensive Care Unit
PC	.....	Phosphorylcholine
PDA	.....	Polydopamine
PPH	.....	Postpartum hemorrhage
PUR	.....	Postoperative urinary retention
RCOG	.....	Royal College of Obstetrics and Gynecology
RCTs	.....	Randomized control trials
STI	.....	Sexually transmitted infection
SUI	.....	Stress urinary incontinence
UPEC	.....	Uropathogenic E. coli
UTI	.....	Urinary tract infection
UUI	.....	Urodynamic urinary incontinence
VD	.....	Vaginal delivery

List of Tables

List of Tables (Cont...)

List of Figures

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Protocol of Thesis

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Introduction

Cesarean delivery rates have risen steadily**.** In some parts of the world this has surpassed a ratio of 1:3 when compared to vaginal delivery ***(Sinnott et al., 2016).***

One of the most common preoperative procedures for caesarean section (CS) is the placement of an indwelling catheter in the bladder. According to a UK national survey on surgical techniques used during elective caesarean section with epidural anesthesia, 10.6%, 82.0% and 7.3% of obstetricians used indwelling catheters for the duration of the procedure, for longer than the procedure and in–out catheterization, respectively, whereas 0.1% of obstetricians did not use urethral catheterization ***(Li et al., 2011).***

Empirical urinary catheterization is commonly performed during cesarean delivery as it is widely believed that its placement can improve exposure of the lower uterine segment at the time of surgery, prevent urinary bladder injury and avoid postoperative urinary retention ***(Nasr et al., 2009)***.

Bruising and edema caused by surgery near the uterovesical area and lower abdominal wall lead to retention of urine that predisposes to urinary tract infection (UTI) ***(Hickling et al., 2015).***

In the postoperative period, an indwelling bladder catheter could be associated with decreased incidence of postpartum hemorrhage due to uterine atony and it can avoid the need for the woman to get out of bed to urinate or use a bedpan while she is still recovering from the effect of analgesia or anathesia ***(Abdel-Aleem et al., 2014).***

Catheterization has been consistently associated with urinary tract infections (UTIs)**.** Within 48 hours, up to 85% of indwelling catheters may be colonized with bacteria, which can lead to bacteriuria ***(Ortega et al., 2008).***

UTIs account for 40% of all nosocomial infections, and about 80% of these are associated with the use of urinary catheters. UTIs may lead to local and systemic morbidity, as well as serious complications, such as septic shock, respiratory insufficiency, secondary bloodstream infection, fluid balance disorders, chronic renal insufficiency and death, and related increases in healthcare costs ***(Soto, 2014).***

Several studies have shown that cesarean section (CS) performed without using urethral catheter also is as safe as the traditional approach. Instead, some additional benefits have been reported such as low rate of UTI, less

voiding discomfort, early ambulation and shorter hospital stay ***(Pandey et al., 2015).***

Despite the use of urethral catheterization is associated with pain and discomfort to the patient, nonuse of a urethral catheter is associated with increased incidence of the need of postoperative urethral catheterization ***(Acharya et al., 2012).***

There is insufficient evidence to change clinical practice in favor or disfavor of the routine use of indwelling urinary catheters for intra- and post-operative care in patients undergoing caesarean section ***(Abdel-Aleem et al., 2014).***

Research hypothesis:

In pregnant women undergoing the first CS urinary catheterization compared to non-catheterization will not have any effect on intraoperative and postoperative complications.

Research question:

In pregnant women undergoing the first CS does urinary catheterization have any effect on intraoperative and postoperative complications compared to non-catheterization?

Aim of the work

This study aims to compare the routine use versus non-use of urethral catheterization in women undergoing first elective cesarean section as regard to intraoperative and postoperative complications

Patients and Methods

Study setting:

This study will be done at Ain Shams University Maternity Hospital.

Study design:

A randomized controlled trial

Study population:

A total of one hundred and seventy pregnant women will be included in this study after taking their consent with full explanation of the study including potential benefits and risks.

Recruitment:

One hundred and seventy pregnant women scheduled for first elective CS attending at outpatient clinic will be chosen after complete history and physical examination to determine eligibility for inclusion.

Inclusion criteria:

- Pregnant women undergoing first elective CS at term pregnancy
  (37-41w gestation).
- First CS.
- haemodynamically stable

Exclusion criteria:

- Spinal anesthesia.
- History of recurrent UTI during pregnancy.
- Medical complications e.g: diabetes with pregnancy, pregnancy induced hypertension, cardiac disease, chronic renal disease.
- Previous abdominal surgery which may be associated with extensive adhesions.
- Contraindication for the antibiotic used e.g: anaphylaxis.
- Need for extensive use of antibiotics more than the prophylactic dose.

The study population will be randomized using computer sequence program in 1:1 ratio. Allocation of every patient to one of the studied groups will be done using opaque envelops.

The studied groups will be either:

- **Group C**: 85 women undergoing first elective CS will be catheterized immediately preoperatively using Foley's catheter by applying catheterization precautions.
- **Group N:** 85 women undergoing elective CS will not be catheterized.

For both groups

- A written consent will be taken.