ASSESSMENT OF PREVALENCE OF STRESS URINARY INCONTINNENCE DURING PREGNANCY

Thesis

Submitted for Partial Fulfillment of
Master Degree in Obstetrics and Gynecology

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Mohammed Nourallah Abdelmonem

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List of Abbreviations

ATFP	Arcus Tendinous Fascia Pelvis
AUS	Artificial Urinany Sphincter
BC	Bulbo Cavernosus
BMI	Body Mass Index
CS	Cesarean Section
CU	Compressor Urethrae
DI	Detrusor Instability
DM	Diabetes Mellitus
ECM	Extracellular Matrix
EMG	Electromyogram
EUS	External Urethral Sphincter
GDM	Gestational Diabetes Mellitus
GSI	Genuine Stress Incontinence
ICIQ–UI-SF	International Calculation of Incontinence Questionnaire-Urinary Incontinence-Short Form.
ICS	International Continence Society
ISD	Intrinsic Sphincter Deficiency
ISF	Incontinence Severity Index
IUS	Internal Urethral Sphincter
LA	Levator Ani
LUT	Lower Urinary Tract
LUTS	Lower Urinary Tract Symptoms

List of Abbreviations (Cont…)

MDSCs	Muscle Derived Stem Cells
MMK	Marshall-Marchetti Krantz
MMPs	Matrix Metalloproteinases
MRI	Magnetic Resonance Imaging
OR	Odd's Ratio
PFM	Pelvic Floor Muscle
PFME	Pelvic Floor Muscle Exercise
PM	Perineal Membrane
QOL	Quality Of Life
RGS2	Regulator of G-protein Signaling 2
SNPs	Single Nucleotide Polymorphisms
SUI	Stress Urinary Incontinence
TOT	Trans Obturator Tape.
TVT	Tension-free Vaginal Tape.
TVT-S system	Tension Free Vaginal Tape-secure system
US	Urethral Sphincter
UTI	Urinary Tract Infection
UUI	Urge Urinary Incontinence
UVS	Urethrovaginal Sphincter

Abstract

The aim of the study was to investigate the prevalence of stress urinary incontinence during pregnancy and associated risk factors.

Methods: a cross sectional study of 498 women half of them in the first trimester and the other in the third trimester.

Results: the prevalence of stress urinary incontinence was 12.4% in the first trimester and increased to 20.4% in the third trimester.

Previous history of incontinence during childhood, number of deliveries and method of delivery are the risk factors to develop stress urinary incontinence.

Conclusion and Recommendations: The most common type of UI in pregnant women is SUI. According to the results obtained, the prevalence of SUI in our population of pregnant women was 12.4 to 20.5%, which means that more than a fifth of the population of pregnant women is affected, and that this disorder is more common during the third trimester of pregnancy than during the first trimester.

Key words: Stress urinary incontinence, risk factor, trimester, pregnancy.

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Introduction

Stress urinary incontinence (SUI), the most common type of urinary incontinence (UI) in pregnant women, is defined by the International Continence Society (ICS) as the complaint of involuntary loss of urine on effort or physical exertion, or on sneezing or coughing**. (Haylen,*et al.*,2010).**

The published data on UI during pregnancy are heterogeneous and there are few studies about prevalence of urinary incontinence during pregnancy. **(Sangsawang, *et al.*, 2013).**

In addition, there are few comparative data to determine whether there are any differences between the beginning and end of gestation. This information would be highly useful because the factors that favor the development of urinary incontinence during pregnancy are still scarcely known. **(Shek and Kruger, 2012).**

It's well known that pregnancy may associate with the reduction of pelvic floor muscle PFM strength which can develop the SUI. However, the exact mechanism of the development of SUI during pregnancy is remained unclear. **(Viktrup, 2002).**

It has been proposed that SUI is caused by both mechanical and hormonal changes that accompany pregnancy. **(Hvidman, et al., 2002).**

The prevalence of SUI has been found in the range from10% to 19% **(Franco, et al.,2014)** increases with gestational age **(Liang, *et al*.,2012)** and is typically worst in the third trimester followed by second and first trimester respectively **(Fritel, *et al*.,2010).**

There are many risk factors associated with SUI during pregnancy. Advanced maternal age increases the risk of USI **(Wesnes, *et al*., 2013).**

This finding was supported by **Hvidman, *et al*., 2002.** They found out that pregnant women aged 30 years and older to be at significantly greater risk for SUI than younger women.

Obesity is a major risk factor that contributes to SUI in women. One of the explanations is that obesity chronically strains and creates tension on the pelvic floor due to increased intra-abdominal pressure**. (Leijonhufvud,*et al*.,2012).**And may impair blood flow and innervation to the bladder and urethra **(Jain and Parsons, 2011).**

Also women with diabetes mellitus *(DM)* are at greater risk of developing urinary incontinence than those without DM. In addition, risk is increased with the duration of DM with greater risk for those having DM for five years or more **(lifford,*et al.,2005*).**

Another risk factor is prior leakage of urine before pregnancy or during previous pregnancies which may be a sign of weak connective tissue of PFM and this increases the risk of urinary incontinence with a rate higher than women who were previously continent. The weakness in PFM disturbs the supportive mechanism of urethra and bladder neck leading to increased risk of SUI **(Fritel,et al.,2004).**

RATIONALE OF THE STUDY (HYPOTHESIS):

Factors that favor the development of SUI during pregnancy are scarcely known, particularly in Egyptian women.

Also the prevalence of SUI during pregnancy is not known.

RESEARCH QUESTION:

What are the prevalence of SUI during first and last trimesters of pregnancy and the factors that favor its development in Egyptian women?

AIM OF WORK:

The aim of this study is to assess the prevalence and associated risk factors of SUI during first and third trimesters of pregnancy in Egyptian women.

Subjects and Methods

The study was registered at www.clinicaltrials.gov with ID NCT03117504.

A) SUBJECTS:

A cross-sectional study of two groups of women was conducted.

Each group consists of 249 patients with a total number of 498 patients:

*Group 1: women during first trimester(less than 14 weeks of pregnancy).

*Group 2: women during third trimester (more than 28 weeks of pregnancy).

INCLUSION CRITERIA

- Women during first trimester; (less than 14 weeks of pregnancy).
- Women during third trimester; (more than 28 weeks of pregnancy).

EXCLUSION CRITERIA

- Women during the second trimester of pregnancy; (14-28 weeks of pregnancy).
- Women with symptoms of UI and anal incontinence before pregnancy (reported by themselves).
- current treatment with drugs (benzodiazepines, diuretics)
- Patients with communication problems, cognitive disorders & mental disturbances.
- Patients who underwent any previous surgery for incontinence.