

**The Efficacy of Tamsulosin (α blocker) versus
Oxybutynin (anticholinergic) versus Placebo on
ureteric stent related discomfort.**

THESIS

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2013

Abstract

The aim of the present study is to compare between the efficacy and safety of Tamsulosin (an alpha blocker) versus Oxybutynin (an anticholinergic) versus placebo on ureteral stent related discomfort symptoms. The study was conducted on 75 Adult male or female patients (60 men, 15 women, mean age, 38.09 ± 9.62 years) requiring unilateral retrograde ureteropyelography or uerteroscopy with stent placement (to treat ureteric stone disease or ureteric obstruction) , 25 patients in each arm Arm 1 which includes the patients being discharged with a prescription for tamsulosin (0,4 mg once daily), Arm 2 which includes the patients being discharged with prescription for Oxybutynin (5 mg 3 times daily) and Arm 3 which includes the patients being discharged with prescription for placebo and the evaluation was done after one week and after one month Using USSQ. The patients were enrolled according to inclusion and exclusion criteria as described in the protocol and after obtaining their consents. All the enrolled patients evaluated before the enrollement by full medical history.

Key Words:

Histological Anatomy of Bladder Wall, Receptors of Urinary Bladder, Nerve Supply of Bladder, Overactive Bladder.

بسم الله الرحمن الرحيم

(و قل ربى زدنى علما)

صدق الله العظيم

Acknowledgements

First, I always like to thank the great God for helping us to know and learn .

I would like to express my deep appreciation to:

Prof. Dr. Ashraf Abo Elela.

Prof. Dr. Sherif Abdel-Rahman.

Prof. Dr. Khaled Abdelhamid El Gamal.

Ass . Prof. Dr. Ahmed El Shenoufy.

Dr. Mohammed Abdel –Rassoul.

For their kind continuous help and support to finalize this work.

Also I am very much grateful to *Ass . Prof. Dr. Ashraf Mesharafa* for his kind help to start this work.

Lastly and not the least , I would like to thank my parents , my wife, my sister, my brother and all my family for their always support to me and to dedicate this work to my kid Malika.

**The Efficacy of Tamsulosin (α blocker)
versus Oxybutynin (Anticholinergic) in
Ureteric Stent related Discomfort**

**A PROSPECTIVE RANDOMIZED
CONTROLLED STUDY**

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List of Abbreviations

GAG	Glycosaminoglycan layer
M1	Muscarinic 1
M2	Muscarinic2
M3	Muscarinic 3
M4	Muscarinic 4
Ach	Acetylcholine
Ca	Calcium
cAMP	Cyclic adenosine monophosphate
CNS	Central Nervous System
GVA	General visceral afferent fibers
OAB	Overactive Bladder
PVR	Postvoidal residual urine
UTI	Urinary Tract Infection
FDA	Food and Drug Administration
ESWL	Extracorporeal shock wave lithotripsy
USSQ	Ureteric stents symptoms questionnaire
BPH	Benign Prostatic Hyperplasia
IPSS	International Prostate Symptoms Score
LUTS	Lower Urinary Tract Symptoms
WK	Week
Mo	Month
QOL	Quality of life

Introduction

Ureteric indwelling stents are commonly used following endourologic procedures. They represent, however, a source of significant discomfort to a proportion of patients with these stents^(1,2). A number of strategies and drugs have been proposed to minimize stent-related symptoms^(3,4,5). However, there is little agreement on the best way to deal with these symptoms.

Stent-related symptoms have a high prevalence and may affect over 80% of patients⁽⁶⁾. Several studies described the symptoms related to ureteral stents and their respective estimated incidence: irritative voiding symptoms including frequency (50-60%), urgency (57-60%), dysuria (40%), incomplete emptying (76%), flank (19-32%) and suprapubic pain (30%), incontinence, and hematuria (25%) are included^(6,7,8-12).

Aim of Work

- The aim of this study is to compare between the efficacy and safety of Tamsulosin (an alpha blocker) versus Oxybutynin(an anticholenergic) versus Placebo on ureteric stent related discomfort symptoms.

Review of Literature

Chapter 1 : Histological anatomy of bladder wall

Upon examining the histology , The urinary bladder wall has the same tissue layers as the renal pelvis and ureter. The layers are: mucosa, muscularis propria , and serosa / adventitia⁽¹³⁾ .

- **Histology of bladder mucosa :**

The innermost portion of the urinary bladder is the mucosa⁽¹³⁾. The mucosa of the urinary bladder is lined by a multilayered transitional epithelium (Urothelium)⁽¹⁴⁾ .

- **Histology of the transitional epithelium:**

Multilayered epithelium with a maximum of seven cell layers . There are three different cell types: basal cell layer, intermediate cell layer and surface cell layer. The basal cell layer renews the urothelium by cell division. The new cells migrate to the lumen. The surface cells are of large epithelial cells, sometimes multinucleate, and up to 200 μm in size and covered by a glycosaminoglycan layer (GAG). The function of the GAG layer is antibacterial layer coating the urothelium⁽¹⁴⁾ .

- **Submucosa (Lamina Propria) of the bladder wall**

Lamina Propria is the submucosa of the urothelium consists of connective tissue (collagen, elastin and other extracellular matrix proteins)⁽¹⁴⁾ . There is a layer of cells with the ultrastructural characteristics of myofibroblasts within the human bladder lamina propria. Their close contacts with nerves containing both small clear, and small clear with dense-cored vesicles implies they have both an efferent and an afferent nerve supply, possibly functioning as a bladder stretch receptor⁽¹⁵⁾ .

- **Histology of tunica muscularis :**

The tunica muscularis of the bladder is formed by the detrusor muscle (smooth muscle) with muscle fibers run irregularly in all directions⁽¹⁴⁾ .