

# HORMONAL THERAPY IN UROLOGY

ESSAY

Submitted in Partial Fulfilment  
For Master Degree  
( Urology )



616-6  
E F

BY

**EISSA FATHI KHORSHID**

M.B., B. Ch.

02/8/85



Supervised by

**Dr. A. FATTAH AGGOUR**      **Dr. M. RAFIK EL HALABY**

Professor of Urology

Lecturer of Urology

Faculty of Medicine

Faculty of Medicine

Ain Shams University

Ain Shams University

Urology Department  
Faculty of Medicine  
Ain Shams University

**1985**



وَمَا أَنْفَسِكُمْ إِلَّا بِرِضْوَانِ  
صَدَقَ اللَّهُ الْعَظِيمِ



## ACKNOWLEDGEMENTS

I am greatly indebted to Doctor A. FATAH AGGOUR, Professor of Urology, Ain Shams University, for his faithful supervision, guidance and encouragement throughout the accomplishment of this work.

I acknowledge with profound gratitude the cooperative collaboration and purposeful spirit of Doctor MOHAMMED RAFIK EL-HALABY, Lecturer of Urology, Ain Shams University.

**TO MY PARENTS**

## CONTENTS

	Page
INTRODUCTION .....	1
CHAPTER I :	
PHYSIOLOGY OF HORMONES IN GENERAL .....	2
CHAPTER II :	
HORMONAL THERAPY OF RENAL CARCINOMA .....	
- Introduction .....	6
- Relationship between hormones and renal tumours .....	7
- Clinical studies on hormonal therapy in renal cancer.....	8
- Indications of hormonal therapy in renal cancer.....	14
- Ways of administration and doses of hormones .....	16
- Side effects of hormonal therapy .....	16
CHAPTER III :	
HORMONAL THERAPY OF CANCER PROSTATE .....	
-, Action of hormones on normal prostate...	18
- Action of hormones on prostatic cancer..	23
- Rationale of hormonal therapy in cancer prostate .....	27
- Indications and time of hormonal therapy.	28
- Clinical studies of hormonal therapy for cancer prostate .....	30
- Methods of hormonal therapy .....	36
- Paradoxical action of testosterone on cancer prostate .....	56
- Hormonal escape .....	57
CHAPTER IV :	
HORMONAL THERAPY OF SENILE ENLARGEMENT OF THE PROSTATE .....	58
CHAPTER V :	
HORMONAL THERAPY OF NOCTURNAL ENURESIS ....	63
SUMMARY .....	66
REFERENCES .....	68
ARABIC SUMMARY .....	

# **I N T R O D U C T I O N**

## INTRODUCTION

The hormones in the human body play a very important role as regards most of the function of the body. So, its study is very important in order to understand its function and the way to correct any problems occurring in the body due to hormonal disturbances.

The hormones play a very important role in the physiology of the urinary tract, so its study will reveal and help in understanding many problems which occur in this important system of the body.

So, the use of hormones in the therapeutic practice in urology, the subject of this essay, will include the following items :

1. Hormonal therapy of Renal Cancer.
2. Hormonal therapy of cancer prostate.
3. Hormonal therapy of senile enlargement of the prostate.
4. Hormonal therapy of nocturnal enuresis.

**PHYSIOLOGY OF HORMONES**  
**IN GENERAL**

## PHYSIOLOGY OF HORMONES IN GENERAL

### Definition :

A hormone is a substance which travels from a special tissue where it is released into the blood stream to distant responsive cells where the hormone exerts its characteristic effect.

In general the hormonal system is concerned principally with control of the different metabolic functions of the body such as controlling the rates of chemical reactions in the cells or the transport of substances through all membranes or other aspects of cellular metabolism like growth and secretion.

### Nature of a hormone :

A hormone is a chemical substance that is secreted in the body fluids by one cell or a group of cells and that exerts a physiological control effect on other cells of the body.

Some are local hormones and others are general hormones. Example of local hormone is

acetylcholine released at the parasympathetic and skeletal nerve endings. Others are secretin and cholecystokinin of the gastro-intestinal tract. These hormones obviously have specific local effects, hence comes the name local hormones.

The general hormones are secreted by specific endocrine glands and are transported in the blood to cause physiologic actions at distant points in the body. A few of the general hormones affects all, or almost all, cells of the body, examples are growth hormone from the adenohipophysis and thyroid hormone from the thyroid gland. Other general hormones, however, affect only specific tissues.

For instance, adrenocorticotropin from the anterior pituitary gland specifically stimulates the adrenal cortex, and the ovarian hormones have specific effects on the sex organs. The tissue affected specifically in this way are called target tissues.

Control of a hormone by negative feed back :

As a hormone accomplishes its physiological function, its rate of secretion is prevented from increasing further and at time is even decreased. This is caused by negative feedback, in general, each gland has a basic tendency to oversecrete its particular hormone but once the normal physiological effect of the hormone has been achieved, information is transferred either directly or indirectly back to the producing gland to inhibit further secretion. Thus the rate of secretion of each hormone is controlled in accord with the need for the hormone.

Chemistry of the hormones :

Chemically, the basic types of hormones are (1) proteins or derivatives of proteins or amino acids, and (2) steroid hormones. For example, the hormones of the pancreas and anterior pituitary are proteins, the hormones of the posterior pituitary are peptides, and those of the thyroid and the adrenal medulla are derivatives of aminoacids.

The steroids are secreted by the glands derived from the mesenchymal zone of the embryo, including the adrenal cortex, the ovary and the testis.

Mechanisms of hormonal action :

The function of the different hormones is to control the activity levels of target tissues. To provide this control function they may alter the permeability of the cell membrane to specific substance, alter the chemical reactions within the cells or activate some other specific cellular mechanism. The different hormones achieve these effects in many different ways. However, two important general mechanisms by which many of the hormones function are : (1) activation of the Cyclic AMP system of cells, which in turn elicits the specific cellular functions, or (2) activation of the genes of the cells which cause the formation of intracellular proteins that initiate specific cellular functions.

**HORMONAL THERAPY OF  
RENAL CARCINOMA**

HORMONAL THERAPY OF  
RENAL CELL CARCINOMA  
=====

The incidence of renal cell carcinoma is 3% of all human cancer and appears to be increasing. The American Cancer Society estimates that one half of 15,000 newly diagnosed patients with renal cell carcinoma will die of the disease. The percentage of patients presenting with renal cell carcinoma and evidence of metastasis at the time of initial diagnosis ranges from 25 % to 75%. Treatment of advanced metastatic disease is unsatisfactory. No single chemotherapeutic agent was found to be effective against renal cell carcinoma, and response rate with these agents was only 10 %. Apart from the poor results, these chemotherapeutic agents are toxic with a small safety margin.

Although radiation treatment occasionally is useful to palliate the pain in bony metastatic lesions in specific instances, the relative radiosensitivity of the tumour made this form of the treatment not useful for metastatic disease. Thus research for a new method which can be effective began, and that was the hormonal therapy (Raghavian, 1982).