

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



شبكة المعلومات الجامعية  
التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

# جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

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# بعض الوثائق الأصلية تالفة

بالرسالة صفحات  
لم ترد بالأصل

**EXTRA CORPOREAL SHOCK WAVE LITHOTRIPSY  
IN THE MANAGEMENT OF CALYCEAL STONES**

*Thesis*

Submitted to the Faculty of Medicine,  
University of Alexandria,  
In partial fulfillment of the requirements  
of the degree of

**Master of Urology**

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## *ABBREVIATIONS*

- ESWL =	Extra Corporeal Shock Wave Lithotripsy.
- IVU =	Intra Venous Urogram
- HPF =	High Power field
- CFU/ml =	Colony Forming Units/ ml
- $\alpha$ HSC =	Alpha hemolytic streptococci.
- $X^2$ =	Chi square
- N.S =	Not significant
K.V =	Kilo Volts

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# INTRODUCTION

# **INTRODUCTION**

## **Renal stones**

Renal stones are a life long disease characterized by the formation of solid concretions within the kidney or its drainage system. The historical evidence of urinary calculi dates back to 7000 years ago and perhaps more. The earliest recorded example being bladder and kidney stones detected in Egyptian mummies dated to 4800 BC.<sup>(1)</sup>

The prevalence of urinary tract stone disease is estimated to be 2 to 3 percent and the likelihood that a white man will develop stone disease by age of 70 is about 1 in 8. The recurrence rates without treatment for calcium oxalate renal stones is about 90 percent at 1 year, 50 percent at 5 years and 35 percent at 10 years.<sup>(2)</sup>

### **Epidemiological aspects of urolithiasis:**

The factors that may be responsible for formation of urinary stones are either intrinsic or extrinsic factors.<sup>(3)</sup>

**I. Intrinsic factors:****1. Heredity:**

The role of heredity underlies all epidemiological concepts of causation of urinary calculi and the hereditary capability of forming stones persists where other factors have changed.<sup>(3)</sup>

Genetic studies performed by Resnik and co-worker<sup>(4)</sup> and by Mc Geown<sup>(5)</sup> have concluded that urolithiasis is associated with a polygenic defect and partial penetration. Several disorders that cause renal stones are hereditary. Familial and renal tubular acidosis (R.T.A) are associated with nephrolithiasis and nephrocalcinosis in almost 70 percent of patients with this disease. Incomplete R.T.A. also appears to be transmitted as a hereditary trait in urolithiasis.<sup>(6)</sup>

Cystinuria is another homozygous recessive disease. The genetic defect is that of excessive excretion of cystine, ornithine, lysine and arginine (C.O.L.A.). Only cystine becomes insoluble in urine. At least two gene defects are required to predispose some cystinuric patients towards formation of cystine urinary stone. Hence, only stone-forming cystinuric patients carry the additional gene defect that causes formation of urinary calculi of cystine.<sup>(7)</sup>

## **2. Age and sex:**

The highest incidence of urinary stones occurs in age ranging between 20 to 40 years. Males are affected three times more than females. Women and children may have some protection against urinary stones due to the presence of low serum testosterone and increased urinary citrate.<sup>(8)</sup>

## **II. Extrinsic factors:**

### **1. Geography:**

The prevalence of urinary stones, provided the historical and geographical changes are correctly reported, varies greatly in number and in age of onset; not only between one country and another, but sometimes within different regions in the same country. The prevalence of urinary stones is higher in those who live in mountains, deserts and tropical areas.<sup>(3)</sup>

Geography influences the incidence of urinary calculi and the types of calculi that occur within a given area. The capability of individuals to transport intrinsic genetic tendencies of urinary stone formation from area to area, however, makes it likely that the major tendencies contributing to urolithiasis reside in the individual.<sup>(9)</sup>

## **2. Water intake:**

The incidence of urinary calculi, in those patients who are predisposed to the disease is decreased with the increase of water intake and increase in urinary output. The factors that are involved in the relationship between water intake and urolithiasis are the volume of water ingested, as opposed to that lost by perspiration and respiration and the mineral or trace element content of the water supply of the region.<sup>(10)</sup>

Although urine dilution by increased water intake may increase ion activity coefficient and hence urinary crystallization, water diuresis reduces the average time of residence of crystal particles in urine and dilutes the components of urine that may crystallize.<sup>(11)</sup>

Finlayson<sup>(10)</sup> concluded that the dilutional effects of water diuresis overweight the changes in ion activity and therefore, do help to prevent stone formation. The mineral content of water also may contribute to the causation of stone disease. Some state that excessive water hardness (e.g. sodium carbonate) cause a greater incidence of stone disease.<sup>(12)</sup>