



شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



شبكة المعلومات الجامعية  
@ ASUNET



# شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم





شبكة المعلومات الجامعية

# جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها  
علي هذه الأفلام قد أعدت دون أية تغيرات



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15-25- c and relative humidity 20-40%

# بعض الوثائق الأصلية تالفة

# بالرسالة صفحات لم ترد بالاصل



# **MATURITY INDICES OF RENAL FUNCTIONS IN NEONATES**

## **THESIS**

*Submitted for Partial fulfillment of Requirement of Master Degree .*

**In**

**Pediatrics**

**By**

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**FACULTY OF MEDICINE  
TANTA UNIVERSITY**

**2000**

سَمِعَ اللَّهُ الرَّعْدَ الرَّعِيمَ

وَالْوَسْوَاسَ الْخَفِيَّ

أَلَمْ يَعْلَمُوا أَنَّهُمْ فِي آيَاتِهِ لَا يَكُونُونَ خَالِفِينَ  
أَلَمْ يَعْلَمُوا أَنَّهُمْ فِي آيَاتِهِ لَا يَكُونُونَ خَالِفِينَ  
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« البقرة ٣٢ »

صَدَقَ اللَّهُ الْعَظِيمَ

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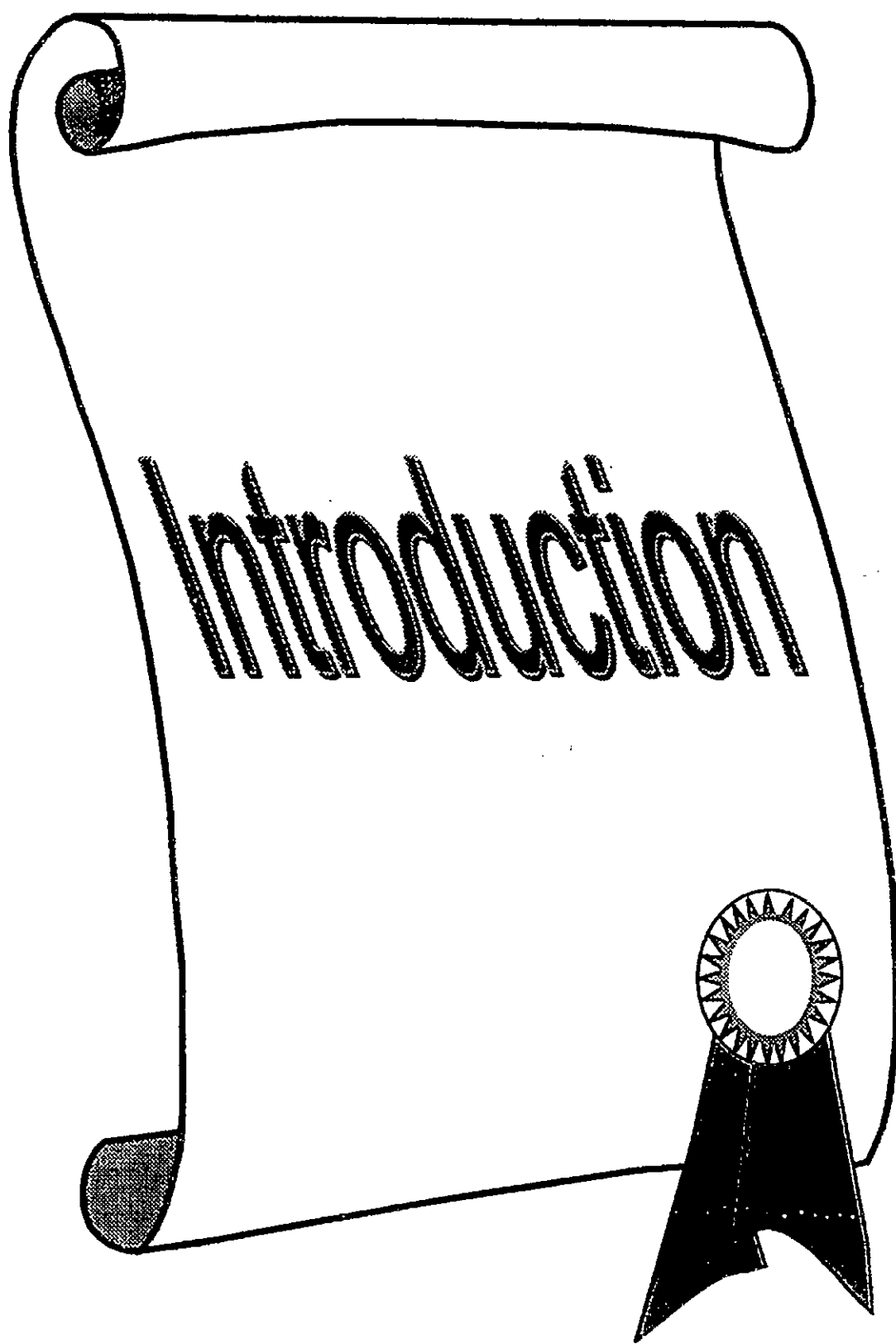


## ABBREVIATION

|                       |                                   |
|-----------------------|-----------------------------------|
| <b>ARF:</b>           | Acute renal failure.              |
| <b>B-2.M:</b>         | B-2 microglobulin.                |
| <b>Bp:</b>            | Blood pressure                    |
| <b>C.N.S:</b>         | Central nervous system.           |
| <b>FENA:</b>          | Fractional excretion of sodium.   |
| <b>FT:</b>            | Full term.                        |
| <b>GA:</b>            | Gestational age                   |
| <b>GFR:</b>           | Glomerular filtration rate.       |
| <b>HIE:</b>           | Hypoxic ischaemic encephalopathy. |
| <b>K:</b>             | Potassium.                        |
| <b>M<sup>2</sup>:</b> | Square meter.                     |
| <b>Na:</b>            | Sodium.                           |
| <b>PT:</b>            | Preterm                           |
| <b>S.Cr:</b>          | Serum Creatinine.                 |
| <b>TNa:</b>           | Tubular reabsorption of sodium.   |

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## INTRODUCTION

The kidney replaces the placenta as the major homeostatic organ, at birth maintaining fluids and electrolyte balance and removing harmful waste products. This transition occurs with changes in renal blood flow, glomerular filtration rate and tubular functions (Bailie, 1992).

The newborn kidney has a limited ability both to dilute and concentrate urine, has decreased glomerular filtration rate, blood flow and tubular reabsorption of glucose, sodium, Bicarbonate and has an inability to excrete an acid and phosphate load (Engl, 1986).

Assessment of renal maturation and early detection of renal dysfunction are important in clinical care of neonates (Peterson, Evrin and Berggard 1969).

Measurements of high and low-molecular- weight proteins in urine provide valuable information concerning glomerular and tubular functions (Kim and Emma 1998).



*Review  
Of Literature*

## **REVIEW OF LITERATURE**

### **RENAL ANATOMY**

The kidneys are paired organs that lie retroperitoneally against the posterior wall of the abdominal cavity. Each kidney is enclosed in a thin, fibrous capsule, which can be stripped from the surface of the the normal kidney without difficulty. The kidneys are surrounded by the perirenal fat and lie in pockets formed by the fascial layers of the posterior abdominal wall (Patriciacollins, 1995).

The kidneys of newborn infants are relatively large and can usually be palpated easily through the muscle layers of the anterior abdominal wall. The surface show fetal lobulation, which is of no clinical significance and disappears after infancy.

Transverse section of the kidney shows an outer cortex and an inner medulla (Fig. 1). The medulla is composed of wedge shaped pyramids, separated by medial extensions of cortical tissue, the renal columns of Bertin. The tips of the pyramids form the renal papillae, there are Twelve to eighteen papillae in each kidney, each of which opens into a cup shaped minor calyx (Hanslias Johne Pauly, 1991).

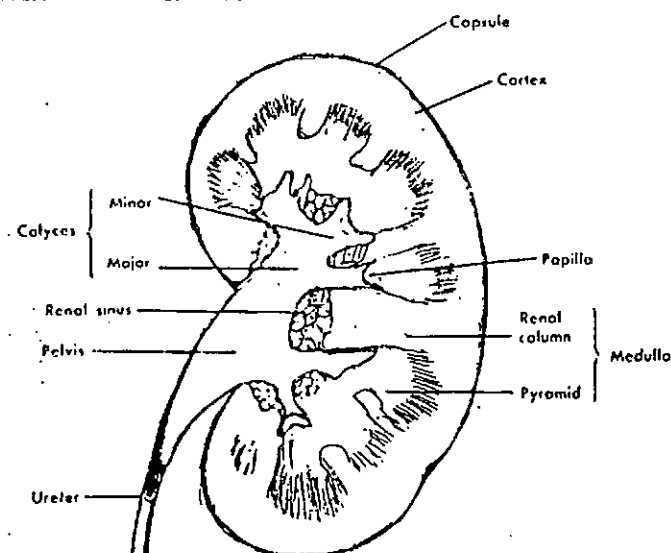


Fig. (1): Transverse section of the kidney

The majors and minor calyces, the renal pelvis, the ureters and the urinary bladder together comprise the urinary collecting system.

There are three embryonic renal structures: The pronephros, mesonephros and the metanephros. There are all derived from the nephrogenic cord. Development proceeds in a craniocaudal direction (Potter and Osathanondh 1966).

### **Pronephros:**

The human pronephros is a cervical kidney. It differentiates at the end of the third week and disappears at the end of the fourth week. It does not function. The solid nephrotoms transform into vesicles that do not form tubules and which degenerate without forming true nephrons or opening into the collecting duct. At the end of the vesicle a diverticulum develops which evolves into the wolffian duct. The pronephros disappears and only the wolffian duct persists (Patriciacollins, 1995).