Salwa Akl

بسم اللّه الرحمن الرحيم

مركز الشبكات وتكنولوجيا المعلومات

قسم التوثيق الإلكتروني

Salwa Akl

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

Salwa Akl

بعض الوثائق الأصلية تالفة
وبالرسالة صفحات لم ترد بالأصل

Study of the hypothalamo-pituitary-thyroid axis in patients with congestive heart failure before and after treatment

Thesis

Submitted in partial fulfillment of the Master Degree in internal medicine

BY

SOUMIA MOUSTAFA MUHAMMAD

M.B., B.CH.; ASSIUT UNIVERSITY

Supervised by

Prof. Dr. Muhammad Muneer Shahwan

Professor of internal medicine,

Head unit of Endocrinology and Metablism.

Faculty of Medicine, Assiut University

Prof. Dr. Monazzama Abdel-All Fadel

Professor of clinical pathology

Faculty of Medicine, Assiut University

Dr. Thanaa Muhammad El-Meligy

Assistant professor of internal medicine

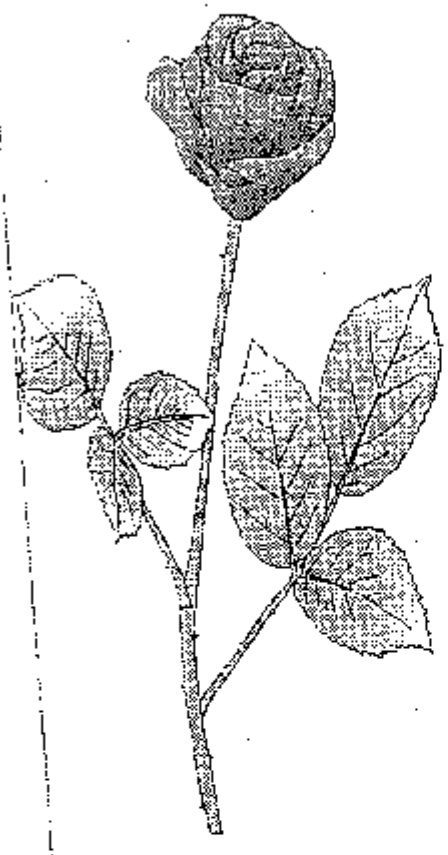
Faculty of Medicine, South Valley University

Faculty of Medicine, Assiut University

1999

ذلك فضل الله يؤتيه من يشاء والله ذو الفضل العظيم

سورة الجمعة اية رقم (٢)



to my
parents,
to my
husband,
to my lovely
baby


ACKNOWLEDGEMENT

Acknowledgement

This work would never be crowned by success without the blessings of **ALLAH.**

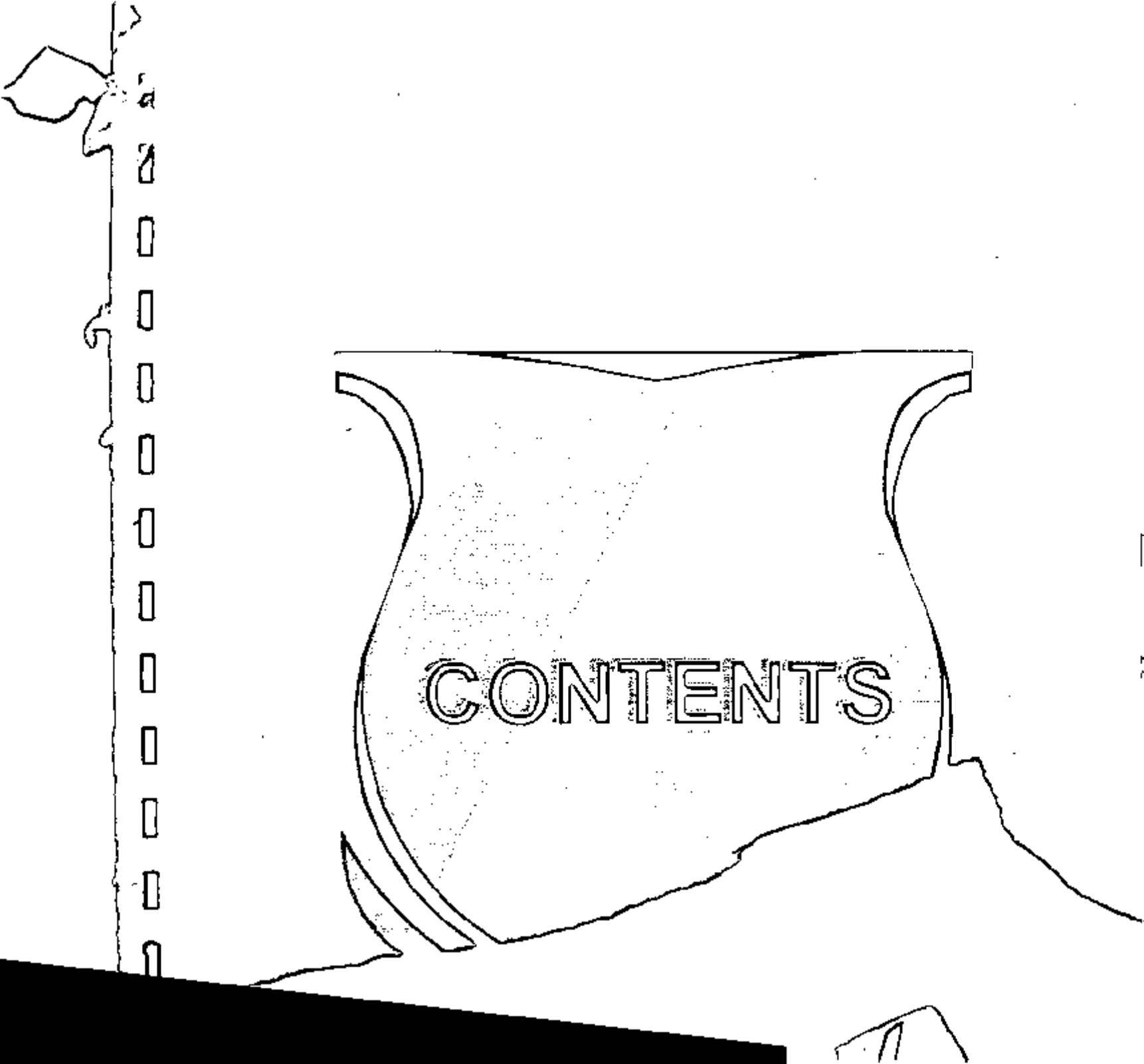
I would like to express my deep gratitude to ***Prof. Dr. Muhammad Muneer Shahwan***, professor of Internal medicine, head of Endocrinology, Metabolism and Diabetes Unit, Faculty of Medicine, Assiut University, for his kind supervision, fruitful advice, generous guidance, careful checking and continuos support throughout this work. He helped me very much.

A special word of thanks and appreciation to ***Prof. Dr. Monazzama Abdel-All Fadel,*** Professor of clinical pathology, Assiut University, for her valuable assistance and meticulous conduction of the laboratory part of this work.

Last but not least I must gratefully thank ***Dr. Thanna Muhammad El-Meligy,*** Assistant Professor of internal medicine, Faculty of Medicine, South Valley University for her great effort, valuable assistance and continuos enthusiastic stimulation she offered throughout this work.

Soumia Moustafa Muhammed

1999


CONTENTS

Contents

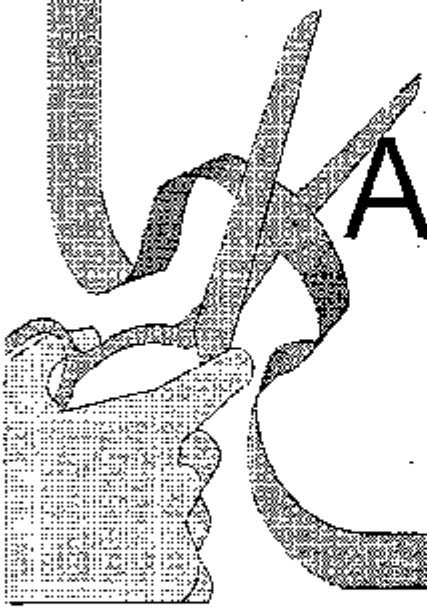
Page

- Introduction and aim of the work 1
- Review of literature 4
  - Physiology of the cardiovascular system 4
  - Pathophysiology of congestive heart failure 6
  - Anterior pituitary gland 11
  - The hypothalamic-pituitary-thyroid complex 13
  - Thyroid gland 14
  - The hypothalamo-pituitary-thyroid axis in patients with congestive heart failure before and after treatment 28
- Material and methods 36
- Results 42
- Discussion 61
- Summary and conclusions 67
- Reference 70
- Arabic summary 81

List of Abbreviations

CHF	Congestive heart failure.
CP	Cardiac out put.
SaO_2	Resting arterial oxygen saturation.
LV	Left ventricle.
ANP	Atrial natriuretic peptide.
IDC	Idiopathic dilated cardiomyopathy.
CSF	Cerebro spinal fluid.
ACTH	Adreno cortico tropic hormone.
GH	Growth hormone.
PRL	Prolactin.
LH	Luteinizing hormone.
FSH	Follicle stimulating hormone.
HCG	Human choriomic ganadotrophin.
CAMP	Cylic adenosine monophosphate.
MIT	Mono iodo tyrosine.
DIT	Diiodotyrosine.
HS	Hormones

T_3	Triiodothyronine.
rt_3	Reverse triiodotyrosine.
T_4	Tetraiodothyronine.
TSH	Thyroid stimulating hormone.
TRH	Thyrotropin releasing hormone.
FT4I	Free thyroxin index.
TBG	Total binding globulin.
SGOT	Serum glutmic oxalo acetic transaminase.
BMR	Basal metabolic rate.



Introduction & Aim of the work

Introduction and aim of the work

Congestive heart failure (CHF) is a problem of growing magnitude (Gorlin, 1983). It is possible that a more penetrating understanding of the pathophysiology of the syndrome will lead to more creative and effective forms of therapy.

Thyroid hormone abnormalities have been identified in many cardiac conditions. The role of thyroid hormone in congestive heart failure has not been well defined. In a population of patients with advanced heart failure, a reduction in triiodothyronine (T_3) with an increase in reverse T_3 being the strongest predictor of mortality. Normalization of thyroid indices appeared to be necessary for prolonged survival to occur (Hamilton and Stevenson, 1996).

The mechanism by which thyroid hormone metabolism is altered in nonthyroid illness is not known. The reduction in free T_3 index and increase in reverse T_3 levels are most likely due to inhibition of iodothyronine 5-deiodinase, the enzyme which both converts T_4 to T_3 and leads to reveres T_3 catabolism (Kaptein et al., 1982).

It was found that SGOT and bilirubin concentration were higher in patients with a low free T_3 index/reveres T_3 ratio supports the hypothesis that impairment of hepatic function secondary to passive congestion in these patients with congestive heart failure (Henson, and Heber, 1983). It was found that T_4 and T_3 were decreased in patients with severe chronic heart failure.

The study showed significant inverse correlation with cardiothoracic ratio, mean pressure of the right atrium, pulmonary artery systolic pressure, and peripheral venous pressure.

However, there was no correlation between serum T_4 or T_3 concentration and left ventricular end diastolic pressure, left ventricular ejection fraction and cardiothoracic ratio suggest that thyroid function was decreased in patients with marked cardiomegaly. High inverse correlation between serum T_4 or T_3 concentrations and mean right atrial pressure, pulmonary artery, systolic pressure, and peripheral venous pressure suggest that hypofunction of thyroid gland correlate more with right sided heart failure or pulmonary hypertension than left sided heart failure (Hidetoshi et al., 1988).