

D

**A Study of Some Tumor Markers
in
Neonatal Jaundice
(Alpha-Fetoprotein and Carcinoembryonic
Antigen in Neonatal Jaundice)**

M. S. Thesis submitted for
partial fulfillment of Master Degree in Pediatrics

By

Dr. Ahmed Abd-El Monem Eed
(M. B. B. ch.)

Supervised by

Prof. Dr. Mohammed Fouad El-Badrawy
Prof. of Pediatrics
Ain Shams University

Prof. Dr. Ali Khalifa
Prof. of Biochemistry
Head of Diagnostic Unit
Ain Shams University

Dr. Kesham Awad
Assistant Prof. of Pediatrics
Ain Shams University

Faculty of Medicine
Ain Shams University

1997





هو الذى يصوركم فى الأرحام كيف يشاء
لا إله إلا هو العزيز الحكيم
صدق الله العظيم

Acknowledgment

*F*irst and foremost thanks to Allah, " The most
beneficent, the merciful "

I would like to express my sincere gratitude to
Professor Dr. Mohammed Fouad El-Badrawy,
Professor of Pediatrics, Faculty of Medicine, Ain Shams University,
for his meticulous supervision of this work.

I deeply thank **Professor Dr. Ali Khalifa,** Professor of
Biochemistry, Faculty of Medicine, Ain Shams University for his
patience and constructive criticism during the preparation of this thesis.

I wish to thank **Dr. Hesham Abd El-Samei Awad,**
Assistant Professor of Pediatrics, Faculty of Medicine, Ain Shams
University for his valuable advice and keen supervision.

Last but not least, thanks to my **Family** to whom I owe a lot.

Ahmed Abd El-Monem

Contents

I•	Introduction	1
II•	Aim of the Work.....	6
III•	Review of literature:	
A•	Bilirubin metabolism.....	7
B•	Neonatal hyperbilirubinemia.....	19
①	Unconjugated hyperbilirubinemia.....	29
	Physiologic jaundice.....	29
	Pathological jaundice.....	33
	Complication of hyperbilirubinemia (Kernicterus)	48
②	Conjugated hyperbilirubinemia (Neonatal cholestasis).....	50
③	Treatment of hyperbilirubinemia	53
	phototherapy	54
	Exchange transfusion.....	62
	Phenobarbital	74
	Tin (Sn)-protoporphyrin or (tin- mesoporphyrin)	74
C•	Tumor markers	
①	Historical background of tumor markers.....	75
②	Definition	76
③	Potential uses of tumor markers	84
④	Classification of tumor markers	84
⑤	Oncofetal markers	86
⑥	AFP	87
⑦	CEA.....	90
IV•	Subjects and methods.....	92
V•	Results	99
VI•	Discussion	127
VII•	Summary and conclusion.....	136
VIII•	Recommendations.....	140
IX•	References	142
X•	Arabic summary.....	

List of Tables

♦ <u>Table (1):</u>	
Normal values of serum bilirubin.....	21
♦ <u>Table (2):</u>	
The principle causes of unconjugated hyperbilirubinemia in neonatal period.....	22
♦ <u>Table (3):</u>	
Different diagnosis of neonatal cholestasis.....	25
♦ <u>Table (4):</u>	
5 criteria for exclusion the physiological jaundice.....	31
♦ <u>Table (5):</u>	
Possible factors involved in producing physiological jaundice.....	32
♦ <u>Table (6):</u>	
Serum bilirubin level (mg/dL) as a criterion for exchange transfusion.....	53
♦ <u>Table (7):</u>	
Total bilirubin (mg/dL) and bilirubin /albumin ratio (mg/g) as criteria for exchange transfusion.....	69
♦ <u>Table (8):</u>	
A brief history of tumor markers.....	76

♦ <u>Table (9):</u>	
Levels of AFP and CEA in neonates with indirect hyperbilirubinemia	102
♦ <u>Table (10):</u>	
Levels of AFP and CEA in infants with direct hyperbilirubinemia.....	104
♦ <u>Table (11):</u>	
Levels of AFP and CEA in normal healthy control neonates	105
♦ <u>Table (12):</u>	
Levels of AFP and CEA in infants in the fourth group.....	107
♦ <u>Table (13):</u>	
Comparison of serum levels of AFP (ng/mL) between males and females in group of indirect hyperbilirubinemia	109
♦ <u>Table (14):</u>	
Comparison of serum levels of AFP (ng/mL) between males and females in group of direct hyperbilirubinemia	109
♦ <u>Table (15):</u>	
Comparison of serum of AFP (ng/mL) between males and females in the normal healthy control group.....	110
♦ <u>Table (16):</u>	
Duncan's multiple range test between the three groups.....	110
♦ <u>Table (17):</u>	
Duncan's multiple range test between subgroups in the first group.....	111

♦ <u>Table (18):</u>	
Comparison of serum levels of CEA (ng/mL) between males and females in the first group.....	113
♦ <u>Table (19):</u>	
Comparison of serum levels of CEA (ng/mL) between males and females in the second group.....	114
♦ <u>Table (20):</u>	
Comparison of serum levels of CEA (ng/mL) between males and females in the third group.....	114
♦ <u>Table (21):</u>	
Comparison of serum CEA (ng/mL) between fed and nonfed at first week.....	116
♦ <u>Table (22):</u>	
Comparison of serum CEA (ng/mL) between fed and nonfed at second week.....	116
♦ <u>Table (23):</u>	
Comparison of serum CEA (ng/mL) with age postnatally.....	116

