

**Development of a Database for an Electronic
Filing System for Neonates with Operable
Congenital Anomalies at Neonatal Intensive
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Ain Shams University**

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(... رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ

الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَى وَالِدَيَّ

وَأَنْ أَعْمَلَ صَالِحاً تَرْضَاهُ

وَأَدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ

الصَّالِحِينَ

صدق الله العظيم

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Contents

<i>Subject</i>	<i>Page No.</i>
List of Abbreviations.....	i
List of Tables.....	v
List of Figures	viii
Introduction	1
Aim of the Work.....	5
Review of Literature	
Classification of Congenital Anomalies	6
Causes of Congenital Anomalies	37
Management of Congenital Anomalies	59
Database and Electronic Medical Record	130
Subjects and Methods	139
Results.....	142
Discussion	179
Summary	196
Conclusion.....	199
Recommendation.....	201
References	202
Appendix	I
Arabic Summary	—

List of Abbreviations

Abbrev.	Full term
ABG	: Arterial blood gases
ACE	: Angiotensin Converting Enzyme
ADH	: Antidiuretic hormone
AF	: Atrial fibrillation
AFP	: Alpha-fetoprotein
ALP	: Alkaline phosphatase
BMI	: Body mass index
BPD	: Biparietal diameter
BUN	: Blood urea nitrogen
CAs	: Congenital anomalies
CBC	: Complete blood count
CCAM	: Congenital cystic adenomatoid malformation of the lung
CDH	: Congenital diaphragmatic hernia
CHAOS	: Congenital High Airway Obstruction Syndrome
CMV	: Cytomegalovirus
CNS	: Cerebral nervous system
CPAP	: Continuous positive airway pressure
CRP	: C-reactive protein
CS	: Cesarean section
CSF	: Cerebrospinal fluid
CVCs	: Central venous catheters
CVP	: Central venous pressure
CVS	: Chorionic Villous Sampling
CVS	: Chorionic villus sampling
CXR	: Chest x-ray
DASH	: Dynamic allele-specific hybridization
DBMS	: Database Management System
DIC	: Disseminated intravascular coagulation

List of Abbreviations (Cont...)

Abbrev.	Full term
EA	: Esophageal atresia
EEN	: Early enteral nutrition
EHRs	: Electronic health records
EMR	: Electronic medical records
FBS	: Fetal blood sampling
FDA	: Food and Drug administration
FFP	: Fresh frozen plasma
FISH	: Fluorescence in situ hybridization
FR	: Free radicals
FRC	: Functional residual capacity
GBS	: Group B Streptococci
GIS	: Geographic Information Systems
GIT	: Gastrointestinal tract
GI	: Gastro-intestinal
Hb	: Haemoglobin
HCG	: Human chorionic gonadotropin
HFV	: High frequency ventilation
HIV	: Human immunodeficiency virus
HR	: Heart rate
HTN	: Hypertension
IBM	: International Business Machines Corporation
ICD-10-CM	: International Classification of Diseases, Tenth Revision, Clinical Modification
INH	: Isoniazid
IQR	: Interquartile range
ITP	: Idiopathic thrombocytopenic purpura
IUGR	: Intra-uterine growth retardation
IV	: Intravenous
IVIG	: Intravenous immunoglobulin
MAS	: Minimal access surgery

List of Abbreviations (Cont...)

Abbrev.	Full term
MCA	: Multiple congenital anomalies
MLPA	: Multiple ligation PCR amplification
MRI	: Magnetic resonance imaging
MSAFP	: Maternal serum alpha-fetoprotein
MV	: Mechanical ventilation
NCHS	: National Center for Health Statistics
NEC	: Necrotizing enterocolitis
NF	: Neurofibromatosis
NICU	: Neonatal intensive care unit
NIOSH	: National Institute for Occupational Safety and Health
NPO	: Nil per os
NSAIDs	: Nonsteroidal anti-inflammatory drugs
NT	: Nuchal translucency
NTDs	: Neural tube defects
NVD	: Normal vaginal delivery
OFC	: Occipitofrontal circumference
PAS	: Para-Aminosalicylate Sodium
PCA	: Patient-controlled analgesia
PDA	: Patent ductus arteriosus
PEEP	: Positive end-expiratory pressure
PHC	: Primary health care
PICCs	: Peripherally inserted central catheters
PKU	: Phenylketonuria
PNCA	: Parent- or nurse-controlled analgesia
PONV	: Postoperative nausea and vomiting
POS	: Postoperative length of stay
PSARP	: Posterior sagittal anorectoplasty
PT	: Prothrombin time
PTT	: Partial thromboplastin time

List of Abbreviations (Cont...)

Abbrev.	Full term
PUBS	: Percutaneous umbilical blood sampling
QF-PCR	: Quantitative Fluorescent Polymerase Chain Reaction
RBCs	: Red blood cells
RFLPs	: Restriction fragment length polymorphisms
RR	: Respiratory rate
SD	: Standard deviation
SES	: Socio economic status
SIADH	: Syndrome of inappropriate antidiuretic hormone secretion
SIMV	: Synchronized Intermittent Mandatory Ventilation
SIRS	: Systemic inflammatory response syndrome
SNPs	: Single nucleotide polymorphisms
SQL	: Structured Query Language
TERIS	: Teratology information system
TLC	: Total leucocytic count
TO	: Tracheal occlusion
TO	: Tracheal occlusion
TOF	: Tracheocephageal fistula
TPN	: Total parenteral nutrition
VLBW	: Very low birth weight
VSD	: Ventricular septal defect
WHO	: World Health Organization
WOS	: Whole length of stay

List of Tables

<i>Table No.</i>	<i>Title</i>	<i>Page No.</i>
Table (1):	Problems in Morphogenesis	22
Table (2):	Minor congenital anomalies:	27
Table (3):	Causes of Human Congenital Malformations Observed During the First Year of Life.....	37
Table (4):	Some disorders of Mendelian or Single-Gene Inheritance and Their Significance:.....	40
Table (5):	Some Disorders of Organ Systems Associated With Mitochondrial DNA Mutations.....	42
Table (6):	Proven human teratogens or embryotoxins- drugs and chemicals have resulted in human congenital malformations	50
Table (7):	Prenatal maternal exposure to infection	56
Table (8):	A list of soft markers with the chromosomal anomalies with which they can be associated.....	65
Table (9):	US FDA Pregnancy Risk Classification of drugs and some examples of commonly used drugs in pregnancy and their categories as per FDA categorization	101
Table (10):	Descriptive data of all neonates included in the study	142
Table (11):	Prevalence of operable CAs over past 3 years in NICU unit	144
Table (12):	Relation between previous NICU admission and mortality among patients with operable CA ..	145
Table (13):	Comparison between laboratory data pre and postoperative for the studied neonates.....	146

List of Tables *(Cont...)*

<i>Table No.</i>	<i>Title</i>	<i>Page No.</i>
Table (14):	Comparison between preoperative and postoperative cultures and X-ray results.....	147
Table (15):	Relation of preoperative mechanical ventilation with mortality and WOS	147
Table (16):	Relation of preoperative TPN with mortality and WOS	149
Table (17):	Relation of preoperative inotrope with mortality and WOS	151
Table (18):	Relation of intraoperative central line insertion with mortality and POS.....	153
Table (19):	Relation of intraoperative blood products with mortality and POS.....	155
Table (20):	Relation of intraoperative ventilation with mortality and POS	157
Table (21):	Relation between postoperative muscle relaxant with mortality and POS.....	159
Table (22):	Relation of postoperative ventilation with mortality, sepsis and POS	161
Table (23):	Relation between postoperative analgesia with mortality and POS.....	163
Table (24):	Most common organisms in postoperative culture and sensitivity and their prevalence	164
Table (25):	Common catheters and their postoperative duration in operated CA.....	165
Table (26):	Relation of common catheters and mortality.....	166
Table (27):	Relation of common catheters and sepsis.....	167
Table (28):	Relation of common catheters and POS	168

List of Tables *(Cont...)*

<i>Table No.</i>	<i>Title</i>	<i>Page No.</i>
Table (29):	Common postoperative complications among operated CA patients.....	169
Table (30):	Relation between mortality and common postoperative complications	169
Table (31):	Relation of postoperative sepsis with preoperative CRP, preoperative culture and postoperative TPN..	171
Table (32):	Relation between postoperative start of feeding (in days) with sepsis and mortality	173
Table (33):	Correlation between postoperative start of feeding time and POS	174
Table (34):	Relation between second look operation and mortality.....	175
Table (35):	Mortality in operable CA and all neonates admitted to NICU over past 3 years	176
Table (36):	Mortality in operated and non operated CA patients	177

List of Figures

<i>Figure No.</i>	<i>Title</i>	<i>Page No.</i>
Figure (1):	Causes of 3.1 million neonatal deaths in 193 countries in 2010	7
Figure (2):	Fetus showing gastroschisis: an example for malformations.....	8
Figure (3):	Patient with unilateral complete cleft lip and palate.....	9
Figure (4):	Anteroposterior radiograph of upper gastrointestinal tract shows a single streak of barium within narrowed elongated pyloric channel.....	14
Figure (5):	A newborn infant with a myelomeningocele at the lower end of the back	16
Figure (6):	Clinical photograph of both legs with amniotic band and right second toe showing constricting bands.....	17
Figure (7):	Head of infant showing severe left occipital plagiocephaly (asymmetric skull shape)	18
Figure (8):	Early fetal magnetic resonance image shows alobar holoprosencephaly	23
Figure (9):	Plain x-ray revealed multiple rib deformities on right side with spina bifida and scoliosis included in VACTERL Association.....	24
Figure (10):	Example of a male karyotype with trisomy 21	43
Figure (11):	Normal fetal ultrasound at 16 weeks of gestation.....	63
Figure (12):	Illustration of the amniocentesis procedure.....	69

List of Figures (Cont...)

<i>Figure No.</i>	<i>Title</i>	<i>Page No.</i>
Figure (13):	Illustration of the chorionic villus sampling procedure	71
Figure (14):	Skull shapes associated with premature closure of single sutures	79
Figure (15):	Opacification of lens in infant with congenital cataract.....	80
Figure (16):	Infant with micrognathia	81
Figure (17):	Typical findings in a newborn female infant with Turner syndrome	83
Figure (18):	Plantar view of bilateral metatarsus adductus, showing rounding of the lateral border of the feet	83
Figure (19):	Infant with trisomy 13, a condition associated with cardiac defects in over 90% of cases, with ventricular septal defect being the most common	84
Figure (20):	Faun tail hypertrichosis, Skin markers of occult spinal dysraphism in children	86
Figure (21):	Infant with trisomy 18, a condition associated with cardiac defects in over 90% of cases.....	87
Figure (22):	Tracheal occlusion (TO) techniques using a foam plug,an external clip applied by fetoscopy in congenital diaphragmatic hernia....	105
Figure (23):	Resection of congenital cystic adenomatoid malformation of the lung.....	106
Figure (24):	Sacroccocygeal teratoma in 24-week-old fetus prior to surgical repair	106

List of Figures (Cont...)

<i>Figure No.</i>	<i>Title</i>	<i>Page No.</i>
Figure (25):	Categories of CAs in neonates and prevalence of each	143
Figure (26):	Relation of preoperative mechanical ventilation with mortality	148
Figure (27):	Relation of preoperative TPN with mortality.....	150
Figure (28):	Relation of preoperative inotrope with mortality	152
Figure (29):	Relation of intraoperative central line insertion with mortality	154
Figure (30):	Relation of intraoperative blood products with mortality	156
Figure (31):	Relation of intraoperative ventilation with mortality	158
Figure (32):	Relation between postoperative muscle relaxant with mortality	160
Figure (33):	Relation of postoperative ventilation with mortality	162
Figure (34):	Relation between mortality and common postoperative complications.....	170
Figure (35):	Relation of postoperative sepsis with preoperative CRP and preoperative culture.....	172
Figure (36):	Correlation between postoperative start of feeding time and POS	174
Figure (37):	Mortality in operated and non operated CA patients.....	178

Introduction

Congenital abnormality refers to any abnormality, whether genetic or not, which is present at birth (*Turnpenny and Ellard, 2005*). It can also be defined as abnormality of physical structure or form seen at birth or few weeks after birth (*Hudgins and Cassidy, 2008*).

While *Lacob et al (2009)* defined congenital abnormalities as structural, functional or metabolic disorders present at birth.

Major structural anomalies appear in 2-3% of newborns and other 2-3% are discovered in children up to 5 years old, summarizing 4-6%. Birth defects are the first causes of infantile mortality, accounting for approximately 25% of all neonatal deaths. Minor anomalies appear in approximately 15% out of the total of newborns. These anomalies do not alter the individual's health status, but they are associated with major defects in some cases, therefore they can serve as key elements for the diagnosis of more serious, hidden defects (*Lacob et al., 2009*).

The body systems most affected were the central nervous system in 46.2% of cases (an incidence of 1.84/1000 births), skeletal system in 43.6% (1.74/1000 births), urogenital system in 5.1% (0.20/1000 births), respiratory system in 2.6% (0.10/1000 births) and gastrointestinal tract in 2.6% (0.10/1000 births) (*Ekanem et al., 2011*).