Assessment of Nursing Care Given for Children Undergoing Cardiac Catheterization

Thesis

Submitted for Partial Fulfillment of the Requirements of the
Master Degree in Pediatric Nursing

By

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2014

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*First, I am forever grateful to **Allah** who gave me the ability and strength to fulfill this work.*

*I would like to express my deep appreciation to **Prof. Dr. Iman Ibrahim Abd Al-Moniem,** Professor and Head of Pediatric Nursing Department, Faculty of Nursing, Ain Shams University, for her constant support, constructive criticism and valuable supervision. I would not have been able to complete this work without her guidance.*

*I'm also, very grateful to **Dr. Zeinab Fathy El Sayed**, Assistant Professor of Pediatric Nursing, Faculty of Nursing, Ain Shams University, who spared no effort in giving me precious help throughout my work and her important role in informing me about correct approach to follow.*

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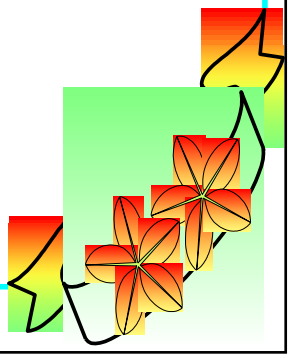
Dedication

- To my husband
- To all my family members for their support and encouragement to accomplish this work.

I dedicate this work

Baraka Fam Mary Beshai



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List of Abbreviations

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AACCN	American Association of Critical-Care Nurses	79
AHA	American Heart Association	11
AHAS	American Heart Association Statistics	4
ACCF	American College of Cardiology Foundation	23
AODL	Activities of Daily Living	82
AS	Aortic Stenosis	24
ASD	Atrial Septal Defect	12
ASD_1	The ostium premium type	16
ASD_2	the ostium secundum type	16
AV	Aortic Valve	6
AS	Aortic Stenosis	24
BP	Blood Pressure	22
CC	Cardiac Catheterization	84
CHD_1	Congenital Heart Diseases	1
CHD_2	Congenital Heart Defects	1
CHF	Congestive Heart failure	16
CMS	Congenital Mitral Stenosis	32
COA	Coarctation of the Aorta	13
CVD	Congenital Cardiovascular Defect	11
ECG	Electrocardiograms	82
FDA	Fetal Ductus Arteriosus	19
HRN	High Risk Neonates	88
ICU	Intensive Care Unit	36
IDD	Insulin-Dependent Diabetes	13

List of Abbreviations (Cont.)

Abbreviation	Meaning	Page No.
IV	Intravenous	73
IVC	Inferior Vena Cava	8
IVF	Intravenous Fluids	84
L to **RA**	Left to Right Atrium	19
LA	Left Atrium	6
LBW	Low Birth Weight	87
LV	Left Ventricular	6
NC	Nursing Care	87
NHLI&BI	National Heart Lung Institute & Blood Institute	111
NPO	Nothing by Mouth	35
O_2	Oxygen	60
O_2T	Oxygen Therapy	85
PA	Pulmonary Artery	9
PAS	Pulmonary Artery Stenosis	27
PDA	Patent Ductus Arteriosus	12
PS	Pulmonic Stenosis	26
PVOD	Pulmonary Vascular Obstructive Disease	19
QOC	Quality of Care	73
RA	Right Atrium	6
RV	Right Ventricular	6
SaO_2	Oxygen saturation	65
S&S	Sign and Symptoms	82
SVD	Sinus Venosus Defect	16
TGA	Transposion of Great Arteries	13
THR	Texas Health Resources	79
TOF	Tetralogy of Fallot	13
US	United States	1
VS	Vital Signs	83
VSD	Ventricular Septal Defect	17
WHO	World Health Organization	12

Abstract

Cardiac catheterization is an invasive diagnostic procedure. It is still considered the gold standard for evaluating the heart. **Aim:** This study aimed to assess nurses' knowledge and skills (performances) related to CC for children. **Research Design:** A Descriptive design was utilized in this study. **Settings:** This study was conducted at the Coronary Care Unit (CCU) and Intensive Care Unit (ICU) in Ain Shams University Hospital and Cairo University Children Hospital (Abo-Elrish El-Yabany Hospital). **Subjects:** A convenience sample included all available (30) nurses were working in the previously mentioned setting. **Tools of data collection:** A questionnaire sheet to assess nurses' knowledge about cardiac catheterization and observational checklists to assess nurses' performance regarding cardiac catheterization. **Results:** Nearly two thirds of the studied nurses aged 30 years and more than half had 10 years and more experience in cardiac catheterization. Nearly three quarters of them held diploma in nursing. Two thirds of the studied nurses have unsatisfactory knowledge as well as for performance and educational level and years of experience had statistically significant difference with nurses' knowledge and their performances regarding to cardiac catheterization. **Conclusion and recommendations:** Upgrading nurses' knowledge and performance through continuous educational program and orientation program.

Key words: cardiac catheterization, assessment nursing care

Introduction

Congenital heart diseases ($CHDs_1$) are a major health problem in developing countries, where 15% of all neonatal fatalities are attributed to that disease. The incidence of CHD is 8-10 of every 1000 live birth in the North America. Each year, more than 35,000 babies in the United States (U.S) are born with congenital heart defects ($CHDs_2$) (***National Heart Lung Institute & Blood Institute [NHLI & BI], 2007)***. In the U.S, more than 1 million are living with congenital heart defects. The incidence of CHD among Egyptian children has been estimated to be 8 per 1000 of live births ***(Mohammed, 2009***).

Cardiac catheterization is the insertion of a catheter into a chamber or blood vessel of the heart. The catheter is guided through the heart with the aid of fluoroscopy, after that the tip of the catheter is within a heart chamber, contrast material is injected, and films are taken of the dilution and circulation of the material (angiography) ***(Wilson & Hockenberry, 2010).***

Cardiac catheterization (CC) is today's gold standard for evaluating the heart. The procedures may be categorized as diagnostic, interventional, or electrophysiologic. Diagnostic CC is used to identify structural defects. Interventional CC is used as treatment measure to dilate occluded or stenotic structures or vessels or close some defects. Eelectro-

physiologic CC involves the use of electrodes to identify abnormal rhythms and destroy sites of abnormal electrical conduction (***Driscoll, 2006***; ***Feltes, 2011).***

Cardiac catheterization is the most invasive diagnostic procedure, can lead to serious complications and occasionally death. Complications related to catheter insertion and manipulation includes serious arrhythmias, heart block, cardiac perforation, hypoxic spells, arterial obstruction, hemorrhage, and infection. Complications related to contrast injection includes reactions to the contrast material, intramyocardial injection, and renal complications as hematuria, proteinuria, oliguria, and anuria. Complications related to exposure, sedation, and medications include hypothermia, acidemia, hypoglycemia, convulsion, hypotension, and respiratory depression, which are more likely to occur in newborns. The risk of CC and angiography varies with the child's age and illness, the type of lesion and the experience of the physician doing the procedure ***(Jowett et al., 2007).***

Nurses have important role in cardiac catheterization, they assess the child's physical, psychological readiness and knowledge level, review the purpose of the procedure and inform the child how long the procedure usually takes, state who will be present while it is going on, and describe the appearance of catheterization laboratory (***Donna, 2005***).

Children's caregivers also inform them about the sensation that may be experienced during the procedure such as palpation, a feeling of the heat or hot flash (as the dye is injected into either side of the heart) and a desire to cough. The nurse may use written, illustrated materials or videotapes to assist the child understanding. Nurses' role is not only concerned with implementation of child teaching but also monitoring and caring for the child post CC to prevent complication (***Joyce & Hokanson, 2005).***

A complete nursing assessment is necessary to ensure a safe procedure with a minimum of complications. Nursing assessment should include an accurate measure of height and weight, essential to correct catheter selection, obtaining a history of allergic reactions is important because some of the contrast agents used is iodine based. The nurse should assess pulses dorsalis pedis and posterior tibial before the child goes to the catheterization room **(*Hockenberry & Wilson, 2009*).**

After the CC the child's vital signs are usually checked at scheduled intervals thereafter. Extremity checks, insertion site for bleeding and hematoma formation and level of consciousness also assessed because heparin or antithrombotic drugs are utilized prior to, during or after the procedure, and observation for signs of bleeding at the insertion site. Placing child on bed rest and the head of the bed may be raised to 30