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Institute of Postgraduate
Childhood Studies
Medical Studies Department

EARLY DETECTION OF CONGENITAL CARDIOVASCULAR DEFECTS IN NEONATES

Thesis
Submitted for fulfillment of Ph. D. Degree in Childhood Studies
from
Medical Studies Department

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2009

ACKNOWLEDGMENT

Thanks to **GOD** who always leads us to success for we trust in **HIM** and not in ourselves.

In this opportunity, I would like to express my deepest gratitude to ***Professor Adel Mounir Mishriky***, Professor of Community Medicine, Faculty of Medicine, Suez Canal University, for his apposite guidance, continuous encouragement and valuable advice in addition to performing the statistical analysis.

I was lucky enough to have ***Professor Randa Mohamed Kamal***, Professor of Pediatrics, Institute of Postgraduate Childhood Studies, Ain Shams University, as one of my supervisors. She was of great help to me for her well-doing, assistance and sustainment.

Moreover, I wish to express my sincere gratitude to ***Asst. Professor Hala Mufeed Said***, Asst. Professor of Pediatrics, Faculty of Medicine, Cairo University, for her kind supervision, constant support and care, which facilitated my work to a great extent.

I would like to thank ***Asst. Professor Howaida Galal El-Said***, Asst. Professor of Pediatrics, Faculty of Medicine, Cairo University and Associated Professor of Pediatric Cardiology, San Diego Medical School, USA, for her great help in performing echocardiography, sharing the results of this study, with great support and valuable advises.

In recognition of their guidance and great support, I am honored to ***Professor Gamal Samy***, Professor of Pediatrics and the Vice Dean of Ain Shams University and to ***Professor Khaled H. Taman***, Professor of Pediatrics and the Dean of the Institute of Postgraduate Childhood Studies, Ain Shams University. In addition, I am grateful to all members of the nursery care unit in Kasr el-Aini Hospital, Cairo University, for their help in performing this work. I would also like to thank the families who allowed us to make measurements on their babies.

Finally, it may not be out of place to record the immense encouragement and help which were beyond measure of my family, which consists of my husband ***Eng. Bassem El-Galid***, Master Degree of Engineering, AUC. My daughter ***Maria***, my late father the pharmacist ***Dr. Emil***, my mother ***Mrs. Nawal***, Master Degree of English Literature, my sister ***Dr. Nagwa***, Master Degree of General Practice, her husband ***Eng. Micheal Wassef***, Bachelar of Science, Civil Engineering, my brother ***Dr. Medhat***, Master Degree of General Surgery and AFRCS, his wife ***Dr. Gihan Adley***, Master Degree of Clinical Pathology. Every member of my family had offered his aid and help in a particular way according to his/her own abilities.

ABSTRACT

Congenital cardiovascular defect (CCVD) is an abnormality in cardio-circulatory structure or function that is present at birth or diagnosed in adulthood. It is one of the most common congenital malformations that accounts for half of all deaths from lethal malformations in children. Almost one third to one half of CCVDs are severe and lethal unless an intervention is done early.

The aim of the present study was to determine if pulse oximeter coupled with accurate clinical examination are useful tools for the early detection of congenital cardiovascular defects.

A systematic random sample was recruited from the nursery unit of neonates born in Kasr el Aini Hospital, Cairo University, over a period of one year starting from June 2006 till the end of May 2007. The incidence of CCVD was 48/1,000 live births, denoting the importance of the early detection of CCVD. Life-threatening or critical CCVD was defined as those with lesions that without intervention in the neonatal period would be fatal.

Our study was based on determination of preductal and postductal saturations £95%. On adding PO to diastolic blood pressure

difference in the lower limb >10 mmHg lower than the right upper limb improved the detection of CoA to 100% sensitivity, which may be fatal if missed. Besides, PO augmented clinical examination in the early detection of both cyanotic and critical cases. The sensitivity of clinical examination alone was 53.3% that improved and the specificity was high with PO cut off point £95%.

In conclusion, PO is an easily applied, non-invasive and specific tool for the early detection of CCVD. Pulse oximeter does not serve as a substitute, but it augments a careful clinical examination. Therefore, the strategy of adding PO to clinical examination appears to obtain better results in the early detection of CCVD in a timely manner and can truly help save lives. Consequently, this screening should become a part of the discharge sheet from the nursery care unit for every newborn. Further studies are necessary to determine cost-effectiveness.

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