بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

THE FEASIBILITY OF PREOPERATIVE 6-MINUTE WALK TEST FOR PREDICTING POSTOPERATIVE PULMONARY COMPLICATIONS OF THORACOTOMY

By

AYA MAHMOUD ABDUL-QADER

M.B. Ch, Cairo University

A Thesis Submitted to the Faculty of Medicine at Ain Shams University
in Partial Fulfillment of the Requirements for the Degree of
MASTER OF CHEST DISEASES

Under the Supervision of

Prof. **ASHRAF MOKHTAR MADKOUR**

Professor of Chest Diseases
Faculty of Medicine, Ain Shams University

Prof. **AHMED ANWAR EL NORI**

Professor of Cardiothoracic Surgery
Faculty of Medicine, Ain Shams University

Assistant Prof. **MARYAM ALI ABD ELKADER**

Assistant professor of Chest Diseases
Faculty of Medicine, Ain Shams University

FACULTY OF MEDICINE
AIN SHAMS UNIVERSITY
2020

بسم الله الرحمن الرحيم

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم

صدق الله العظيم

سورة البقرة الآية: ٣٢

Dedication

I’d like to dedicate this work to my supervisors who gave me a great support, teaching and kind continuous encouragement.

Then I want to dedicate it to the soul of my father, my mother who supported me on my whole life with endless love, support, help and their continuous praying for me.

I’d like to dedicate this work also to my husband Eng. Abdulrahman Qobbor, my backbone and my new father, I’d like to thank him for his patience, love, technical support and teaching.

Finally, I’d like to dedicate this work to my children and hope to be a really good mother for them.

Table of Contents

Acknowledgments

In the name of **Allah**, the Most Gracious and the Most Merciful.

It has been a great honor to proceed into this work under supervision of Prof. **Ashraf Mokhtar Madkour**; Professor of Chest diseases, Faculty of Medicine Ain shams University, for his support, kind encouragement and for his extreme scientific guidance in searching, writing, editing and clinical work for this study.

Great thanks to **Prof. Ahmed Anwar El-Nouri**; Professor of Cardiothoracic surgery, Faculty of Medicine Ain shams University, for his support, coordination and guidance for doing this work.

And I'm so grateful to **Assistant Prof. Maryam Ali Abd Al-kader**; Assistant Professor of Chest Diseases, Faculty of Medicine Ain Shams University, for her guidance, support, editing and kind encouragement in doing this work.

I'd like to thank to **Prof. Ibrahim Kasab** Professor of Cardiothoracic surgery, Faculty of Medicine; Banha University, for great work with cases in Imbaba chest hospital.

Also, I'd like to thank **Dr. Ahmed Hassan**, **Dr. Amr Hawash** cardiothoracic residents, cardiothoracic department in both faculty of medicine, Ain shams university and Imbaba chest hospital for their coordination, selection of patients and support.

Also, I would like to thank all the **staff members** of Chest department, Faculty of medicine; Ain shams University, for their support in the clinical program and teaching.

Finally, I' would like to thank **Prof. Mostafa Alhussieny** and **Dr**. **Mohamed Nawara** for their scientific support in the statistical analysis of Data.

Abbreviations

6MWD	Six-minute walk distance
6MWT	Six-minute walk test
ABG	Arterial blood gases
AT	Anerobic threshold
ATS	American thoracic society
COPD	Chronic obstructive pulmonary disease
CPET	Cardiopulmonary exercise testing
DLCO	Diffusion capacity for carbon monoxide
ECG	Electrocardiogram
FEV	Forced expiratory volume
FEV_1	Forced expiratory volume in the first second
FRC	functional residual capacity
FVC	Forced vital capacity
ICU	Intensive care unit
MV	Mechanical ventilation
MVV	Maximal voluntary ventilation
PaC_{o2}	Partial arterial carbon dioxide pressure
Pa_{o2}	Partial arterial oxygen pressure
POETTS	Perioperative exercise testing and training society
PPCS	Postoperative pulmonary complications
PPO	Predicted postoperative
RV	Residual volume
TLC	Total lung capacity
VC	Vital capacity

$Vo_{2\ max}$	Maximal oxygen consumption
SD	slandered deviation
Min	minimum
Max	maximum
DM	diabetes mellitus
TB	tuberculosis
IPF	idiopathic pulmonary fibrosis
%P	percentage of predicted
RR	respiratory rate
HR	heart rate
SPO2	peripheral oxygen saturation
N	number
S	significant
NS	non-significant
LOS	length of stay in hospital
SBP	systolic blood pressure
DBP	diastolic blood pressure
B. S	Borg scale (grade of dyspnea)
Δ RR	degree of change between pre & post-test value of RR
Δ HR	degree of change between pre and post-test value of HR
Δ SpO_2	degree of change of pre and post- test values of SPO2%
Δ Borg.	degree of change of grade of dyspnea pre and post-test

Abstract

Background:

Exercise testing is a reliable additional method to role pulmonary assessment prior to surgery of Thoracotomy patients. Supporting significant evidence is missing about routine and usual implementation of these simple tests in the field of preoperative evaluation.

Aim: To test the feasibility of preoperative six-minute walk test for predicting postoperative pulmonary complications of Thoracotomy.

METHODS: Between November 2018 and October 2019, 36 patients with an indication for thoracotomy underwent their surgery. Demographic data were collected, spirometry ,6MWT were performed 1 day before thoracotomy, Total walking distance, oxygen saturation decline, heart rate recovery, dyspnea grade, degree of BP change, postoperative length of stay in hospital were all evaluated, then detection and follow up of postoperative pulmonary complication was done.

RESULTS: out of 36 cases studied 21 were males and 15 females with a mean age of 42 years. All surgeries were done by just 2 surgeons. A 6MWD of 500 m and 100% of the predicted 6MWD were taken as threshold values to classify studied patients into (group A) whom walked ≤ 500m. and who achieved ≤ 100% of predicted 6MWD and (group B) whom walked >500m. and who achieved >100% of predicted 6MWD .with an increased risk of postoperative complications in group A than group B [26.3% vs 0 %, P-value 0.023] showing significant difference between the 2 groups regarding the post-operative pulmonary complication . Group A showed 5 patients (26.3%) had post-operative pulmonary complications, 1 patient had post-operative aspiration and edema, 2 patient had post-operative empyema, 1 patient had post-operative RF, mechanical ventilation & died, 1 patient had post-operative hemorrhage.

CONCLUSION: Patients who walked less than 500 m during the 6MWT before thoracotomy have an increased risk of postoperative pulmonary complications.

List of Figures

List of Tables