

تقييم المنظومة الجراحية سريعة المسار في جراحة الاطفال
بجامعة القاهرة

رسالة مقدمة من الدكتور /علي ابراهيم محمود شلبي

كجزء من متطلبات الحصول على درجة الدكتوراة

في الجراحة العامة

تحت اشراف

د. د. منتصر محمد الكتبي

استاذ - جراحة الاطفال - جامعة القاهرة

د. د. عمر عبد العليم

استاذ - جراحة الاطفال - جامعة القاهرة

د. د. خالد حسين كمال بهاء الدين

استاذ جراحة الاطفال

كلية الطب - جامعة القاهرة

٢٠١٥



الأستاذ الدكتور/ وكيل الكلية لشئون الدراسات العليا و البحوث

،، تحية طيبة و بعد ،،

نتشرف بان ترسل لسيادتكم طيه قرار لجنة حكم علي رسالة (.....) في جراحة
(.....) الخاصة بالطبيب/..... وكذا مرفق
الاستشارات الخاصة بالسادة أعضاء هيئة التدريس (المشرفون و المناقشون).

،، وتفضلوا بقبول وافر التحية ،،

رئيس
مجلس قسم الجراحة العامة

أ.د/ مأمون إسماعيل


محضر
اجتماع لجنة الحكم على الرسالة المقدمة من
الطبيب / علي ابراهيم محمد سبلي
توطئة للحصول على درجة ~~الطبيب~~ / الدكتوراه
في الجراحة العامة

تحت عنوان باللغة الإنجليزية : Evaluation of Fast-track Surgery in
a pediatric population at Cairo University

باللغة العربية : تقييم المنظومة الجراحية " سريعة مسار " في جراحات
الأطفال بجامعة القاهرة

بناءً على موافقة الجامعة بتاريخ ١١ / ١٠ / ٢٠١٥ تم تشكيل لجنة الفحص والمناقشة للرسالة
المذكورة أعلاه على النحو التالي :-

١. د. خالد بهاء الدين
 ٢. د. جمال التامري
 ٣. د. أحمد فارسي
- عن المشرفين
ممتحن داخلي
ممتحن خارجي

بعد فحص الرسالة بواسطة كل عضو منفردا وكتابة تقارير منفردة لكل منهم انعقدت اللجنة مجتمعة في
يوم الأربعاء بتاريخ ٢١ / ١٠ / ٢٠١٥ بقسم جراحات الأطفال مدرج إدور سارسي
بكلية الطب - جامعة القاهرة وذلك لمناقشة الطالب في جلسة علنية في موضوع الرسالة والنتائج التي
توصل إليها وكذلك الأسس العلمية التي قام عليها البحث .
قرار اللجنة : 


توقيعات أعضاء اللجنة :-
المشرف الممتحن

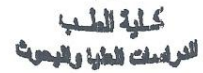


الممتحن الداخلي



الممتحن الخارجي





اسم الطالب : علي ابراهيم حمود حلي
 تاريخ المناقشة : / /
 عنوان الرسالة : تقييم لمنظومة البرامية " سريفة بكسار " في جراحة الأطفال
 جامعة القاهرة

المشرفين : الاسم :	٠٤ د. منسى اللتى	: التوقيع	٠٤ د. منسى اللتى
الاسم :	٠٤ د. عيسى عبد الحكيم	: التوقيع	٠٤ د. عيسى عبد الحكيم
الاسم :	٠٤ د. خالد نبهان الدسيم	: التوقيع	٠٤ د. خالد نبهان الدسيم
المناقشين : الاسم :	٠٤ د. خالد نبهان الدسيم	: التوقيع	٠٤ د. خالد نبهان الدسيم
الاسم :	٠٤ د. جمال العاصم	: التوقيع	٠٤ د. جمال العاصم
الاسم :	٠٤ م. أحمد فارسي	: التوقيع	٠٤ م. أحمد فارسي

[illegible]

نموذج حضور مناقشة رسالة

عصام

Cairo University
Faculty of Medicine
Department of General Surgery

Evaluation of Fast-Track Surgery in a Pediatric Population at Cairo University

Thesis
Submitted in partial fulfilment for the doctorate degree
in General Surgery
by

Aly Ibrahim Mahmoud Shalaby

Under the supervision of
Prof. Montasser El Koutby
Professor of Pediatric Surgery
Faculty of Medicine
Cairo University

Prof. Omar Abdel Alim
Professor of Pediatric Surgery
Faculty of Medicine
Cairo University

Prof. Khaled Bahaaeldin
Professor of Pediatric Surgery
Faculty of Medicine
Cairo University

2015

Acknowledgments

I extend sincere expressions of gratitude to Professor Montasser El Koutby, for his continual scientific support and encouragement. The technical facilities he generously provided to me and without which this work would not have been successfully completed, are very gratefully acknowledged.

I am indebted to Professor Khaled Bahaaeldin, for taking me under his wing for all these years from the beginning of my residency at the Cairo University Children's Hospital. His constant instruction, wise advice, close supervision and stimulating and fruitful discussions were invaluable to my advancement in pediatric surgery and in the preparation of this thesis.

I sincerely thank Professor Omar Abdel Alim, for his continued interest in the point of research and for his scientific support during my residency at the Cairo University Children's Hospital.

Finally I would like to thank Professor Gamal El Tagy, chairman of Department at the Cairo University Specialized Pediatric Hospital for his great encouragement to seek surgical training both in and out of Egypt.

The Professors of the Pediatric Surgery Department are deeply appreciated for their knowledgeable instruction throughout my residency and their enthusiastic support during execution of this work.

Special thanks go to my colleagues and fellow residents at the Cairo University Children's Hospital, who spent many hours helping to gather the data.

To my father, may he rest in peace.

To my mother, for her loving support, encouragement and tireless editing throughout all the drafts.

Abstract

Background:

The concept of fast-track surgery using multimodal perioperative rehabilitation programs was introduced in the early 1990s. Fast-track surgery has been used for some general and cardiac surgery in children. Detailed data on the feasibility, safety and costs of fast-track pediatric surgery are only just emerging.

Patients and methods:

Prospective data collection on all admissions meeting the inclusion criteria was carried out. Demographics, pain score, postoperative feeding, hospital stay, complications and readmissions were evaluated.

Results:

From August 2009 to December 2011, 1024 patients were admitted for the following procedures: appendicectomy, closure of stoma, fundoplication, endo-anal pullthrough for Hirschsprung's disease, hypospadias repair and repair of congenital diaphragmatic hernia. A total of 617 (60.2%) were eligible for fast-track. Laparoscopy was done in 35.5% of cases. The median postoperative pain intensity was 3. Median start of feeds was 1.75 days postoperatively. Hospital stay was a median of 3 days. The overall complication rate was 7.6%. The overall readmission rate was 8.4%.

Conclusions:

Fast-track surgery is feasible in general pediatric surgery, across a wide range of procedures. The frequency of laparoscopy in this study was low. The complication and readmission rates were higher than some published data. Pain relief protocols and antibiotic policies were identified as areas for future research. The compilation of large scale databases of information are mandatory, to provide the evidence-base for performance appraisal. The training of nurses and implementation of pain scores are desirable. Further studies are needed to refine fast-track protocols.

Key words:

fast-track; pediatric surgery; minimally invasive surgery; pain score; hospital stay; readmission

Table of Contents

	Page
Front matter	
Acknowledgements	vii
Dedications	viii
English Abstract	x
Table of Contents	xii
Chapter 1. Introduction	2
1.1 Prologue	4
1.2 Historical Notes	11
1.2.1 Foundations of modern pediatric surgery in Egypt	12
1.2.2 The birth of modern pediatric surgery in the USA	13
1.2.3 The development of pediatric anesthesia	16
1.2.4 Innovation in pediatric surgery	21
1.2.5 To drain or not to drain? The surgical drainage controversy	25
1.2.6 Focus: Trend changes in the management of appendicitis	37
Chapter 2. Pediatric Surgical Ethics	43
2.1 Good ethics begin with good facts	44
2.2 Children's rights	52
2.3 Advocacy for children	54
Chapter 3. Pain	57
3.1 Types of Pain	58
3.2 Physiology of Pain	59
3.3 Analgesics	61
3.4 Assessment and Tools	62
3.5 Pain in Neonates	64
3.5.1 Pain assessment in the neonate	65
3.5.2 Minor surgery	67
3.5.3 Major surgery	69
Chapter 4. Fast-Track Surgery	73
4.1 Adult Fast-Track Surgery	75
4.2 General Pediatric Fast-Track Surgery	77
4.3 Minimally Invasive Surgery in Children	78
4.4 The Role of the Anesthetist	81
4.5 Preoperative Issues	
4.5.1 Premedication	83
4.5.2 Hydration Status	84
4.5.3 Glycemic Control	86
4.5.4 Temperature Control	87
4.6 Intraoperative Issues	
4.6.1 Physiology of Surgical Stress	87
4.6.2 Minimally Invasive Surgery Changes	88
4.6.2.1 Hypercarbia	90
4.6.2.2 Hypothermia	91
4.7 Postoperative Issues	
4.7.1 Pain Management	92
4.7.2 Nausea and Vomiting	94
4.7.3 Ileus and Constipation	96
4.7.3.1 Pathogenesis of Ileus	97
4.7.3.2 Pharmacological Treatment of Ileus	100

4.7.3.3 Laparoscopy and Ileus	101
4.7.3.4 Fast-Track and Ileus	102
4.7.4 Nutritional Supplementation	104
4.8 Fast-Track Anesthetic Techniques	
4.8.1 Local Anesthesia	105
4.8.2 Regional Anesthesia	106
4.8.2.1 Epidural analgesia	107
4.8.3 Monitored Anesthesia Care (MAC)	108
4.8.4 General Anesthesia	109
Chapter 5. Feasibility of Fast-Track Surgery at Cairo University: Study Design and Results	111
5.1 Patients and Methods	113
5.1.1 Inclusion criteria	113
5.1.2 Exclusion criteria	113
5.1.3 Statistical Analysis	114
5.2 Results	115
Chapter 6. Discussion	121
6.1 Suitability of Fast-Track Surgery	123
6.2 Inclusion/Exclusion and Complications	124
6.3 Anesthesia and Analgesia	
6.3.1 Pain Management	125
6.3.2 PONV	127
6.4 Surgical Technique	
6.4.1 Minimally Invasive Surgery	128
6.4.2 Nasogastric Tubes	131
6.4.3 Abdominal Drains	133
6.4.4 Chest Drains	135
6.5 Postoperative Variables	
6.5.1 Nutrition	136
6.5.2 Length of Stay	136
6.5.3 Follow-up	137
6.5.4 Readmission	137
6.5.5 Parent Satisfaction	141
6.6 Is “Better” the Enemy of Good?	141
6.7 Changing the Post-Surgical Nursing Culture	145
6.8 Hospital Performance Indices	148
Chapter 7. Conclusions and Recommendations	155
Appendices	163
1. Antibiotics	
1.1 Classification of Operative Wounds	165
1.2 General Surgery Prophylaxis	166
1.3 Neonatal Antimicrobial Doses	169
1.4 Guideline for prevention of pneumococcal infection in asplenia or in patients with sickle cell disease	174
1.5 Amikacin Guideline	176
1.6 Piperacillin and Tazobactam Guidelines	177
1.7 Vancomycin Guideline	178
1.8 Penicillin Allergy	179
2. Ethical issues	181
3. Analgesics	
3.1 Pediatric Analgesia and Antiemetics	191

3.2 Paracetamol Injection Dose Bands	193
3.3 Analgesic Dose Banding	194
4. Fasting policy	195
5. Surgical IV fluids guidelines	200
6. WHO Egypt Profile	201

References	205
Subject & Author Index	226
Arabic summary	229