Common Complications in the Surgical Intensive Care Unit

Essay

Submitted for Partial Fulfillment of Master Degree in Anesthesia

Presented by
David Adel Boshra Tawadros
M.B.B.Ch
Faculty of Medicine- Assiut University

Supervised by **Prof. Dr. Bahaa El Din Ewiss Hassan**

Professor of Anesthesia and Intensive Care Faculty of Medicine- Ain Shams University

Dr. Fady Adib Abdelmalek

Lecturer of Anesthesia and Intensive Care Faculty of Medicine- Ain Shams University

Dr. Amr Sobhy Abd El Kway

Lecturer of Anesthesia and Intensive Care Faculty of Medicine- Ain Shams University

> Faculty of Medicine Ain Shams University 2016



FIRST OF ALL, THANKS TO ALLAH

I would like to express my deep gratitude, appreciation and sincere thanks to **Prof. Dr. Bahaa El Din Ewiss Hassan**, Professor of Anesthesia and Intensive Care, Faculty of Medicine- Ain Shams University, for his supervision, valuable remarks, until this work was fulfilled.

I would like to express my special deep gratitude, appreciation and sincere thanks to **Dr. Fady Adib Abdelmalek**, Lecturer of Anesthesia and Intensive Care, Faculty of Medicine- Ain Shams University, for his continuous support, meticulous supervision, great valuable remarks, encouragement and assistance until this work was fulfilled.

And special thanks to Dr. Amr Sobhy Abd El Kway, Lecturer of Anesthesia and Intensive Care, Faculty of Medicine- Ain Shams University, for his great help and support throughout this work.

Finally, I would like to express my special deep thanks and gratitude to my family; especially my Mother and my Father for their continuous support and encouragement throughout my life and for providing me the environment needed for concentration and progress.

Contents

Subject P	age
List of Abbreviations	I
List of Tables	IV
List of Figures	V
Introduction	1
Aim of the Study	3
- Chapter (1): Epidemiology of Common Complications	in
Surgical ICU	4
- Chapter (2): Procedural Related Complications and	
Management	13
- Chapter (3): Venous Thromboembolism and its	
Management	37
- Chapter (4): Hospital Acquired Infections and	
Management	49
- Chapter (5): Ventilator Associated Complications and	
Management	66
- Chapter (6): Complications Related to Nutritional Supp	ort
and its Management	75
Summary	87
References	90
Arabic Summary	

List of Abbreviation

Abb. Meaning

ARDS : Acute Respiratory distress Syndrome

ASPEN: American Society for Parenteral and

Enteral Nutrition

ATS : American Thoacic Society

BAL : Broncho-Alveolar Lavage

BiPAP : Bilevel Positive Airway pressure

CA B : Catheter associated Bacteriuria

CA-UTI : Catheter Associated Urinary Tract Infection

CDC : Centers for Disease control and Prevention

CLASBI : Central Line Associated Blood Stream

Infections

COPD : Chronic Obstructive Pulmonary Disease

CPAP : Continous Positive Airway Pressure

CRBSI : Catheter Related Blood Stream Infections

CVC : Central Venous Catheter

D.V.T : Deep Venous Thrombosis

DI : Dialysis Incident

E.N : Enternal Nutrition

GI : Gastrointestinal

H.A.I.s : Health care Associated Infections

HAP : Hospital Acquired Pneumonia

HAT : Hypotension, Altered mental status,

Tachypnea

HCAP : Health Care Associated Pneumonia

HES : Hydroxyethyl starches

HSV-1 : Herpes Virus type 1

List of Abbreviation (Cont...)

Abb. Meaning

ICU : Intensive Care Unit

IN : Immunonutrition

IVAC : Infection related Ventilator Associated

Complication

IVCFs : Inferior Vena Cava Filters

LMWH : Low Molecular Weight Heparin

MAP : Mean Arterial Pressure

MRSA : Methicillin-Resistant Staph Aureus

NG tube : Nasogastric tube

NHSN : National Health care Safety Network

NICE : National Institute for health and Care

Excellence

OR : Operating Room

P.E : Pulmoanry Embolism

P.N : Parenteral Nutrition

PA : Pulmonary Artery

PAC : Pulmonary Artery Catheterization

PEBP : Prophylactic epidural blood patch

PEEP : Positive End Expiratory Pressure

PRES : Posterior reversible encephalopathy

syndrome

PrU : Pressure Ulcer

PSPH : Post spinal puncture headache

PTD : Percuatneous Dilatational Tracheostomy

PUD : Peptic Ulcer Disease

qSOFA : Query Sequential Organ Failure Assessment

List of Abbreviation (Cont...)

Meaning

Red Blood Cells **RBCs RCT** Randomised controlled trials S.S.Is **Surgical Site of Infections** : Sengstaken Blakemore tube SB tube Surgical Intensive Care Units SICUs **SIRS** : Systemic Inflammatory Response **Syndrome** Sequential Organ Failure Assessment **SOFA** ST Surgical Tracheostomy **T4** : Thoracic vertebrae number four Thoracic vertebrae number five **T5** T9 Thoracic vertebrae number nine

TPN: Total Parenteral Nutrition

U.T.Is : Urinary Tract Infections

UDP : Unintentional dural puncture

V.C. : Vertebral Column

Abb.

V.T.E : Venous Thromboembolism

VAC : Ventilator Associated Condition

VAE : Ventilator Associated Events

VAP : Ventilator Acquired Pneumonia

VKA : Vitamin K Antagonist

WBC : White Blood Cells

List of Tables

Table	Title	Page
1	Absolute risk of DVT in hospitalized patients	39
2	Major risk factors for venous thromboembolism	40
3	Wells scoring system for DVT probability	41
4	Table summarizing the differences between old and new definitions of Sepsis	55
5	Management of septic shock	56
6	SSIs different types	59
7	Four wound classes	61
8	Characteristic features for each part of the Urinary Tract	65
9	Algorithm for Ventilator Associated Events	69
10	Complications of Mechanical Ventiltion	74
11	Complications associated with total parenteral nutrition	
12	Complications Associated with Enteral Nutrition	82

List of Figures

Figure	Title	Page
1	The patient safety component of the NHSN	6
2	Central Venous Catheter Set	15
3	Central venous cannulation	15
4	Pulmonary Artery Catheter	19
	Normal pressure values and waveforms as	20
5	a pulmonary intery catheter is advanced	
	from the right atrium to a wedged position	
	in a pulmonary artery	
6	Pulmonary Artery Catheter waveforms	22
7	Foley Catheter	24
8	Operative view of tracheostomy options for	28
	tracheal incision	
9	Operative view of tracheostomy dividing	28
	thyroid isthmus with electrocautery	
10	Tracheostomy tubes	30
11	Malpositions of Chest tube	32
12	Nasogatric Tube Set	33
13	Malposition of NG tube in Respiratory tract	34
	& Hypopharynx	
14	Sengstaken Blakmore Tube	35
15	Sengstaken-Blakemore Tube misplacement	36
16	Virchow's Triad	38
17	Clinical approach for diagnosis of Pulmonary Embolism	43

Figure	Title	Page
18	Xarelto (Rivaroxiban) chemical structure	45
19	Pradaxa (Dabigatrin) chemical structure	46
20	Eliquis (Apixaban) chemical structure	47
21	Inferior vena cava (IVC) Filter	48
22	Algorithm for nutritional support	76



Introduction





Aim of the Study





Epidemiology of Common Complications in Surgical





Procedural Related Complications and Management





Venous Thromboembolism and its Management





Hospital Acquired Infections and Management

