بسم الله الرحمن الرحيم

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بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: لايوجد

Impact of Postoperative Hypothermia on Bleeding in Coronary Artery Bypass Surgery

Thesis

Submitted for Partial Fulfillment of Master Degree in Cardiothoracic Surgery

By

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Mohammed Medhat Mohammed Abdullah El-hadidy

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List of Abbreviations

Abb.	Full term
ACS	Acute coronary syndrome
ACT	Activated clotting time
AKI	Acute kidney injury
ANH	Acute normovolaemic haemodilution
aPTT	Activated partial thromboplastin time
ASA =	Acetylsalicylic acid
AT	Antithrombin
CABG	Coronary artery bypass grafting
CI	Confidence interval
CKD	Chronic kidney disease
CPB	Cardiopulmonary bypass
DAPT	Dual antiplatelet therapy
DDAVP	Desmopressin
DOAC	Direct oral anticoagulant
EACA	ε-Aminocaproic acid
EACTA	European Association of CardiothoracicAnaesthesiology
EACTS	European Association for Cardio-ThoracicSurgery
ECC	Extracorporeal circulation
ECLS	Extracorporeal life support
ECMO	Extracorporeal membrane oxygenation
EPO	Erythropoietin
FFP	Fresh-frozen plasma
FXIII	Factor XIII
GPIIb/IIIa	Glycoprotein
Hb	Haemoglobin
HES	Hydroxyethyl starches
HIT	Heparin-induced thrombocytopenia
HR	Hazard ratio
INR	International normalized ratio
LMWH	Low-molecular-weight heparin
MI	Myocardial infarction

List of Abbreviations cont...

Abb.	Full term
MiECC	Minimally invasive extracorporeal circulationcircuit
MUF	Modified ultrafiltration
OR	Odds ratio
PBM	Patient blood management
PCC	Prothrombin complex concentrate
PLTC	Platelet concentrate
PMEA	Poly2-methoxyethylacrylate
POC	Point-of-care
PRBC	Packed red blood cells
RAP	Retrograde autologous priming
RCT	Randomized controlled trial
rFVIIa	Recombinant activated factor seven
RR	Risk ratio
SD	Solvent–detergent
TEG	Thromboelastography
TEM	Thromboelastometry
TRALI	Transfusion-related acute lung injury
TRIM	Transfusion-related immune modulation
TXA	Tranexamic acid
UFH	Unfractionated heparin
VKA	Vitamin K antagonist

INTRODUCTION

Hypothermia is defined as a core body temperature less than 35 [(1)].

Although hypothermia is known to decrease the metabolic demand of the body and promotes impairment in various systems causing decrease oxygen release to tissues.

Hypothermia results in impairment of the coagulation cascade and the white cell count also decreases [(2)], hypothermia impairs immune function so nosocomial pneumonia will occur in over half of patients who are hypothermic for more than 7 days. [(3)]

Hypothermia-induced increase in catecholamines leads to an increase in cardiac output and oxygen demand. [(4)]

As a result of prolonged hypothermia, bleeding time will be increased due to its effects on platelets count and function [(5,6)]. Platelets also are been sequestrated through RES system (liver/spleen). [(7,8,9)]

Postoperative bleeding and transfusion occur few hours after surgery 6-24 hrs, so we monitor carefully the body core temperature (BMT) in ICU for the first 6 hours postoperatively.

Before discussing the result of our study and comparing them and see the effect, we shall start by reviewing some of the most important topics regarding cardiovascular system anatomy, physiology and the coronary system itself, with discussion of the coagulation cascade physiology and body homeostasis associated with temperature changes.

AIM OF THE WORK

The aim of this prospective study was to evaluate the influence of core temperature on postoperative amount of blood loss, transfusion requirements, coagulation profile and the length of hospital stay in patients undergoing on pump coronary artery bypass grafting operations

REVIEW OF LITERATURE

Body Homeostasis, Temperature Regulation

Introduction

Thermoregulation is a mechanism by which mammals maintain body temperature with tightly controlled self-regulation independent of external temperatures. Temperature regulation is a type of homeostasis and a means of preserving a stable internal temperature in order to survive. Ectotherms are animals that depend on their external environment for body heat, while endotherms are animals that use thermoregulation to maintain a somewhat consistent internal body temperature even when their external environment changes. Humans and other mammals and birds are endotherms. Human beings have a normal core internal temperature of around 37 degrees Celsius (98.6 degrees Fahrenheit) measured most accurately via a rectal probe thermometer. This is the optimal temperature at which the human body's systems function. Thermoregulation is crucial to human life; without thermoregulation, the human body would cease to function. Thermoregulation also plays an adaptive role in the body's response to infectious pathogens. **[9][10]**

Issues of Concern

The body's core internal temperature has a narrow range and typically ranges 97-99 F with tight regulation. When the body's ability to thermoregulate becomes disrupted it can result in overheating (hyperthermia) or being too cool (hypothermia).