بسم الله الرحمن الرحيم

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تم عمل المسح الضوئي لهذة الرسالة بواسطة / سامية زكى يوسف

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

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ELECTROPHYSIOLOGIC EFFECT OF TWO DIFFERENT TECHNIQUES FOR MYOCARDIAL PRESERVATION

Thesis
Submitted for the partial fulfillment of the
M.D. degree in Anesthesia

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Abstract

There has been a considerable interest in the use of normothermic techniques during cardiac operations. This study was conducted on 30 adult patients admitted to kasr-El-Aini hospital for elective coronary artery bypass surgery. Patients were divided into two equal groups. Group I (Warm cardioplegia Group): Fifteen patients received intermittent antegrade warm oxygenated blood cardioplegia with normothermic CPB. Group II (Cold cardioplegia Group): Fifteen Patients received intermittent antegrade cold oxygenated blood cardioplegia with hypothermic CPB. In the current study, the warm cardioplegia group had a higher incidence of spontaneous sinus recovery, a lower incidence of ventricular fibrillation, electric defibrillation and less need for inotropic support after release of aortic cross-clamp than the cold cardioplegia group. The ECG data revealed a lower incidence of new ischemic ST segment changes, A-V block and ventricular arrhythmias in the warm cardioplegia group compared to the cold cardioplegia group. The diagnosis of new MI was made in 1 patient in the cold group while the warm group did not show new myocardial infarction (MI).The warm cardioplegia group had a shorter recovery time, extubation time and less postoperative bleeding than the cold cardioplegia group.On the other hand, no significant difference existed between the cold and warm groups as regards, the demographic data, preoperative clinical data, cross-clamp and CPB times, mean BP during bypass, creatine kinase (CK) and myocardial isozyme of creatine kinase (CK-MB) values together with absence of neurologic deficits in both groups. From the present study, it could be concluded that intermittent antegrade warm blood cardioplegia may resuscitate and protect acutely ischemic myocardium better than the standard hypothermic regimen. A major difference between the two cardioplegic methods was in the electrophysiologic recovery of the heart.

Key Words:

Myocardial protection. Warm cardioplegia. Electrocardiography. Creatine kinase. Coronary surgery. Blood cardioplegia.

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List of Abbreviations

SA:	Sinoatrial.
AV:	Atrioventricular.
Vm:	Membrane potential.
Na^+:	Sodium ion.
Ca^{2+}:	Calcium ion.
K^+:	Potassium ion.
RA:	Right atrium.
RV :	Right ventricle.
LV:	Left ventricle.
CPB:	Cardiopulmonary bypass.
ACT:	Activated clotting time.
C5a:	Complement 5a.
CNS:	Central nervous system.
ECG:	Electrocardiographic.
BBB:	Bundle branch block.
LBBB:	Left bundle branch block
THAM:	Tromethamine.
SOD:	Superoxide dismutase.
H_2O_2:	Hydrogen peroxide.
O_2^-:	Superoxide radical.
ACE:	Angiotensin converting enzyme.
IL-1B:	Interleukin-1B.
IL-8:	Interleukin-8.
α_1:	Alpha 1.
O_2:	Molecular oxygen.
$ONOO^-$:	Peroxynitrite.
NO:	Nitric oxide.

C_3:	Complement 3.
C_{3a}:	Complement 3a.
C_{3b}:	Complement 3b.
C_{4a}:	Complement 4a.
C_1:	Complement 1.
CO_2:	Carbon dioxide.
H^+:	Hydrogen ion.
H_2O:	Water.
H_2CO_3:	Carbonic acid.
HCO_3^-:	Bicarbonate ion.
CK:	Creatine Kinase.
CK-MB:	Myocardial isozyme of creatine kinase.
NADP:	Nicotinamide adenine dinucleotide phosphate.
IAWBC:	Intermittent antegrade warm blood cardioplegia.
IACBC:	Intermittent antegrade cold blood cardioplegia.
PEEP:	Positive end expiratory pressure.
MI:	Myocardial infarction.
DM:	Diabetes mellitus.
Ca:	Calcium.
LVEF:	Left ventricular ejection fraction.
BP:	Blood pressure.
VF:	Ventricular fibrillation.
A-V:	Atrioventricular.
HR:	Heart rate.
CVP:	Central venous pressure.
ICU:	Intensive care unit.
NS:	Not significant.
RBBB:	Right bundle branch block.

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