Anesthetic management for carotid endarterectomy In patients with unstable angina

An essay submitted for partial fulfillment of the master degree in Anesthesiology

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ARABIC SUMMARY

List of abbreviations

ACC	American College of Cardiology
AHA	American heart Association
AMI	Acute myocardial infarction
ASA	Acetyl salicylic acid
BUN	Blood urea nitrogen
CABG	Coronary artery bypass grafting
CAS	Carotid artery stenting
CBF	Cerebral blood flow
CEA	Carotid endarterectomy
CHF	Congestive heart failure
CK	Creatine kinase
COPD	Chronic obstructive pulmonary disease
CVA	Cerebral vascular accident
ECG	Electrocardiogram
EEG	Electroencehpalogram
Hct	Hematocrit
HTN	Hypertension
ICU	Intensive care unit
LBBB	Left bundle branch block
LV	Left ventricle
NSTEMI	Non-ST-elevation myocardial infarction

NTG	Nitroglycerin
NYHA	New York heart association
$Paco_2$	Partial pressure of arterial co_2
PCA	Percutaneous coronary angiography
PCM	Perioperative cardiac morbidity
PCWP	Pulmonary capillary wedge pressure
Pco_2	Partial pressure of co_2
PMI	Perioperative myocardial infarction
PH	Potential of hydrogen
Po_2	Partial pressure of o_2
rCBF	Regional cerebral blood flow
rSO_2	Regional cerebral oxygen flow
STEMI	ST-elevation myocardial infarction
SSEPs	Somatosensory evoked potentials
TCD	Transcranial Doppler
TIA	Transient ischemic attack

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Ahmed Samir

To my parents

My Brothers

And

My little

Introduction

The anesthetic and surgical management of patients undergoing neurovascular surgical procedures has undergone substantial changes in recent years, with perhaps the most changes occurring with respect to carotid endarterectomy ***(Larson and Youngberg, 2000).***

Because it is the most commonly performed vascular procedure, the trend has been toward simplifying the perioperative course, which includes greater use of indirect methods for evaluating adequacy of cerebral function, greater use of regional anesthesia, less use and reliance on monitors for evaluation adequacy of cerebral function, less use of surgical shunts, less use of ICU facilities, and earlier discharge from hospital ***(Larson Youngberg, 2000).***

These changes have decreased hospital costs for this operation without any documented increase on morbidity or mortality ***(Larson and Youngberg, 2000).***

Anesthesiologists and surgeons continue to search for ways to protect the brain from ischemia during temporary interruption of circulation. ***(Larson and Youngberg, 2000)***

It is well to recognize that cerebral vascular disease may be a manifestation of systemic vascular disease, including coronary artery or renovascular disease, and perioperative

outcome may benefit from careful preoperative evaluation and therapy for these systems ***(Larson and Youngberg, 2000).***

The association between carotid artery disease and coronary artery disease presents a number of complex issues. If the patient has combined disease, which entity should be addressed first? The literature does not provide a clear answer to this question ***(Larson and Youngberg, 2000).***

Chapter 1
Anatomical and Physiological Considerations

Anatomy of cerebral blood flow

The common carotid arteries originate in the thorax. The right common carotid artery originates at the bifurcation of the brachiocephalic trunk, and the left originates from the aortic arch. In the neck, the common carotid arteries travel within the carotid sheath. At the level of the thyroid cartilage each common carotid artery bifurcates into internal and external carotid arteries ***(Hemmings and Hopkins, 2006).***

Branches of the external carotid artery include the superior thyroid, lingual, facial, ascending pharyngeal, and posterior auricular artery. ***(Hemmings and Hopkins, 2006)***

The internal carotid artery passes through the neck without branching to enter the middle cranial fossa via the carotid canal of the temporal bone, adjacent to the sphenoid bone. It supplies the hypophysis cerebri, the orbit, and the major portion of the supratentorial origin of the brain ***(Moore, 2006).***