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Lee A. Fleisher and Stanley H. Rosenbaum

Integrated Assessment and Consultation for the Preoperative Patient **963**

David G. Silverman and Stanley H. Rosenbaum

Assessment of the presurgical patient requires interdisciplinary cooperation over the continuum of documentation and optimization of existing disorders, determination of patient resilience and reserve, and planning for subsequent interventions and care. For many patients, evident or suspected morbidities or anticipated surgical disturbance warrant specialty consultation. There may be uncertainty as to the optimal processes for a given patient, a limitation attributable to myriad factors, not the least of which is that there is often a paucity of evidence that is directly relevant to a given patient in a given setting. The present article discusses these limitations and describes a framework for documentation, optimization, risk assessment, and planning, as well as a uniform grading of existing morbidities and anticipated perioperative disturbances for patients requiring integrated assessment and consultation.

Preoperative Evaluation and Preparation of the Patient for Cardiac Surgery **979**

Alec D. Weisberg, Emily L. Weisberg, James M. Wilson, and Charles D. Collard

Cardiac surgery is associated with significant morbidity, mortality, and socioeconomic costs. Preoperative assessment assists the clinician in identifying potential complications and facilitates discussion of these risks with the patient. Careful patient selection and preparation during preoperative evaluation may minimize morbidity, mortality, and resource use. This article outlines a system-based approach to preoperative evaluation and preparation of the patient undergoing cardiac surgery.

Noncardiac Surgery in the Patient with Heart Disease **995**

James B. Froehlich and Lee A. Fleisher

Clinicians are increasingly asked what they can do to evaluate and lower the risk of perioperative cardiac complications. Approximately 4 decades ago, there were few tools to guide the evaluation of perioperative risk. The American Society of Anesthesiology Classification System (ASA class) gave only a vague idea of the risk patients faced during surgery, but the modern era of clinical risk assessment for perioperative complications has seen the introduction of tools that allow clinicians to estimate risk, and also the addition of stress testing for assessing perioperative risk. None of these tests, however, were designed to identify perioperative cardiac risk. This article reviews the literature on perioperative risk

assessment, risk reduction, and testing modalities in patients with cardiac disease, along with the role of perioperative angioplasty and the current American College of Cardiology/American Heart Association guidelines.

Identification and Evaluation of the Patient with Lung Disease

1017

Bobbie Jean Sweitzer and Gerald W. Smetana

Preoperative pulmonary evaluation and optimization improves postoperative patient outcomes. Clinicians frequently evaluate patients with pulmonary disease before surgery who are at increased risk for pulmonary and nonpulmonary perioperative complications. Postoperative pulmonary complications are as common and costly as cardiac complications. In this article, the evaluation of patients with the most common conditions encountered in the preoperative setting, including unexplained dyspnea, asthma, chronic obstructive pulmonary disease, obstructive sleep apnea, and cigarette use, are discussed. Risk stratification for postoperative pulmonary complications and strategies to reduce them for high-risk patients are also discussed. From the available literature, high-risk patients and those patients for whom a multidisciplinary collaboration will be most helpful can be accurately identified.

Surgery in the Patient with Endocrine Dysfunction

1031

Benjamin A. Kohl and Stanley Schwartz

Patients with preoperative endocrinopathies represent a particular challenge not only to anesthesiologists but also to surgeons and perioperative clinicians. The “endocrine axis” is complex and has multiple feedback loops, some of which are endocrine and paracrine related, and others that are strongly influenced by the surgical stress response. Familiarity with several of the common endocrinopathies facilitates management in the perioperative period. This article focuses on 4 of the most common endocrinopathies: diabetes mellitus, hyperthyroidism, hypothyroidism, and adrenal insufficiency. Perioperative challenges in patients presenting with pheochromocytoma are also discussed.

Obesity, Metabolic Syndrome, and the Surgical Patient

1049

Phillip D. Levin and Charles Weissman

Contemporary life, with its sedentary lifestyles, fast foods, processed foodstuff, and desk-bound service employment, is beset by an epidemic of overweight and obese individuals. The World Health Organization reported that worldwide a billion adults are overweight and at least 30% of them are obese. Moreover, increasing numbers of children are obese. In the United States, 2 National Health and Nutrition Examination Surveys of adults aged 20 to 74 years showed that the prevalence of obesity increased from 15% in the 1976 to 1980 survey to 34% in the 2003 to 2004 survey. Obesity and the metabolic syndrome are unfortunately becoming increasingly common perioperative issues. The ultimate aim of caring for such patients is to find ways to minimize the untoward effects of surgery in patients who are obese or have metabolic syndrome.

Surgery in the Patient with Liver Disease

1065

Diego J. Mulienburg, Amrik Singh, Guido Torzilli, and Vijay P. Khatri

Liver dysfunction is a prominent entity in Western medicine that has historically affected patients suffering from chronic viral or alcoholic hepatitis. The incidence of these conditions has not changed dramatically in recent years but the overall number of patients with liver dysfunction has increased considerably with the emergence of the obesity epidemic. Nonalcoholic fatty liver disease (NAFLD) has become increasingly recognized as the most common cause of chronic liver disease in the United States. Although the rate of progression of NAFLD to overt cirrhosis is low, the high prevalence of this condition, combined with the moderate degree of liver dysfunction it engenders, has resulted in a significant increase in the number of patients with liver disease that can be encountered by a surgical practice. Any degree of clinically evident liver disease in a prospective surgical patient should raise concern for the entire surgical team. This particularly applies to intraabdominal surgery whereby the presence of hepatomegaly, portal hypertension, variceal bleeding, and ascites can turn even the most routine operation into a morbid and life-threatening procedure. Nonabdominal surgery avoids some of the technical challenges presented by liver disease but the anesthetic management of a cirrhotic patient still makes any operation potentially more dangerous. In this article, approaches to minimize the risk when surgery becomes necessary in the presence of liver disease are discussed.

Surgery in the Patient with Renal Dysfunction

1083

Dean R. Jones and H.T. Lee

Preoperative evaluation of patients with renal dysfunction often requires the collaborative efforts of the primary care physician, nephrologist, surgeon, and anesthesiologist. Renal dysfunction is typically a spectrum of disease with multisystem effects. Optimization of preexisting medical issues is the key as is a thorough understanding of the potential perioperative risks for further renal injury. Surgical or anesthetic techniques may require alteration for the patient with significant renal dysfunction. Identification of those at risk for renal injury may allow for preventative therapies in the perioperative period. This article focuses on defining the population at risk, a framework for preoperative evaluation, and developments in the area of perioperative renal protection.

Anemia in the Preoperative Patient

1095

Manish S. Patel and Jeffrey L. Carson

Anemia is commonly encountered in the preoperative patient. Determination of the cause of the anemia can affect perioperative surgical and medical management and outcome. Red blood cell transfusions are often administered during the perioperative time period in patients with preoperative anemia, although evidence to support the optimal transfusion threshold is limited. The authors review the evaluation of anemia and evidence regarding perioperative blood transfusions. Recommendations on the treatment of anemia, including perioperative blood transfusions, are outlined.

Perioperative Anticoagulant Management

1105

Paul J. Grant, Daniel J. Brotman, and Amir K. Jaffer

The oral anticoagulant warfarin is a common medication that requires special consideration in the perioperative period. Although some procedures do not require warfarin interruption, the majority will necessitate its temporary cessation due to the risk of bleeding. Determining whether patients will benefit from the temporary use of a heparin product while warfarin is discontinued perioperatively (so-called “bridging” therapy) needs to take into consideration the risk of bleeding balanced with the risk of thromboembolism. Perioperative care also requires minimizing the risk of venous thromboembolism (VTE). Understanding the patient-specific and procedure-specific risks for VTE is paramount to employ optimal risk reduction strategies. This article uses a case-based approach to present the topics of perioperative warfarin management and postoperative VTE prevention.

Preoperative Preparation of the Surgical Patient with Neurologic Disease

1123

Adam Schiavi, Alexander Papangelou, and Marek Mirski

This article emphasizes some key points in the preoperative evaluation of patients with neurologic disease. The amount of neurologic disease in the general population is a difficult number to assess accurately. This is, in part, because of the wide-sweeping scope of neurologic disease. The International Classification of Diseases has the highest number of conditions attributable to neurologic disease. Patients with neurologic disease are commonly encountered, and their illness is often complicated by significant comorbid disease. It is important to think of the patient as a whole rather than the sum of his or her systems. While it is tempting to consider the traditional preoperative evaluation from a “cardiac clearance” point of view, we must resist this urge, and evaluate which risk factors we can modify and hopefully mitigate to optimize the perioperative period.

Emergency and Urgent Surgery

1131

Kevin M. Schuster, Kimberly A. Davis, and Stanley H. Rosenbaum

Patients presenting with general surgical emergencies are hypovolemic, and require early aggressive resuscitative efforts. Although these efforts may safely be accomplished preoperatively in a select subset of patients, it is often the combined task of surgeons, anesthesiologists, and internists to optimize these critically ill patients in the intraoperative and postoperative period. Early surgical consultation and intervention can be lifesaving. This article presents the current state of emergency surgical care in the United States and the approach to the patient with an emergency surgical illness. The aggressiveness of the surgical intervention is patient- and disease-specific and requires frequent and open communication between all health care providers, the patient, and his or her family. In addition to aggressive resuscitation, life-threatening general surgical conditions often require specific diagnostic and therapeutic interventions.