

CHAPTER 1

Introduction

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The emergency department (ED) serves as the gateway for medical care for the preponderance of acutely ill patients. Whether due to medical, surgical, pediatric, obstetric, neurologic, or psychiatric conditions, patients presenting with acute ailments expect that the ED and emergency physicians in particular will be able to diagnose and initiate management of critical conditions. In the United States, as of 2007, there were 117 million annual visits to the ED with 39.4 visits/100 persons [1]. Worldwide, there has been increasing recognition of the need for quality emergency care and the resultant recognition of emergency medicine as a medical specialty in nations as diverse as India, Turkey, and Malaysia. With this explosive growth in emergency care, it is increasingly common for patients to view the ED as the location for entrance into the health care system when confronted with unexpected and severe medical complaints.

This recognition of the ED is well warranted, but it does create a dilemma for emergency physicians who in their practice must be aware of the vast complexities of ailments that can cause patients to present for emergency care. While emergency physicians are clearly well trained to deal with the most common diseases that require emergency interventions, such as cardiovascular disease and trauma, providers in the ED must now become facile with managing patients whose disease entities are either only now being recognized and treated or whose therapies have only recently been developed. During a typical clinical shift, an emergency physician may have to manage acute issues in patients whose co-morbid illnesses may include transplantation, congenital heart disease, end-stage renal disease or cancer. Without awareness of the new treatments and procedures in these areas as well as the implications of increased longevity in patients who previously may have never required emergency care in the past, it is

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easily foreseeable that emergency physicians may not correctly diagnose and initiate treatment in conditions that require acute intervention with resultant detriment to the patient.

At the same time, the literature and educational process in emergency medicine has understandably largely focused upon patients who present most commonly for ED care. Research in emergency medicine largely, though not exclusively, focuses on the most prevalent conditions, such as acute coronary syndromes, pulmonary embolism, stroke, trauma, and sepsis, while textbooks in emergency medicine are largely comprehensive surveys of the entire gamut of diseases that can cause presentation to the ED. Similarly, the core curriculum in emergency medicine for residency training in the United States attempts to cover the entire range of conditions to the ED, but in the process does not allow for more in-depth consideration by trainees of patient populations that are either on the horizon or whose therapies are quickly evolving to result in increased longevity and changed pathophysiology.

This book attempts to address this educational need for emergency physicians to understand patient populations whose ailments either are being treated in new ways or to rectify a lack of common recognition both in diagnosis and the implications of increasing longevity. In selecting topics for inclusion, three themes emerge that underline the challenge facing emergency physicians.

Increased longevity

As seen in the chapters on adults with congenital heart disease, the geriatric trauma patient, adults with cystic fibrosis, the intellectually disabled patient, adults with sickle cell disease, and children with intestinal failure, evolving medical care and understanding of the pathophysiology of disease has resulted in a vast improvement in the life expectancy of patients who previously have not survived to adulthood or whose survival to late adulthood has resulted in their exposure to illnesses that will now require ED care. For emergency physicians, this increased longevity will result in the need to reconsider the pathologic processes that can result in illness as well as new complications of late-stage disease. For example, survival to adulthood of patients with congenital heart disease means that emergency physicians will have to recognize the late complications of surgical procedures that were used to correct these defects in infancy as well as the late cardiovascular and pulmonary issues that may not arise until adulthood. The aging of the general population means that emergency physicians will have to understand the more complex pathophysiology of trauma when interacting with other age-related illnesses. Children with intestinal failure may now survive for longer periods of time and present with complications that were only seen in the past in specialized centers shortly after

birth. For all the patient populations discussed in these chapters, the underlying theme is that the emergency physicians have to conceive of these patients as surviving well beyond what was previously recognized in day-to-day medical practice and consider how that may cause these individuals to present with novel complications not seen in the past.

Novel treatment modalities

As seen in the chapters on the bariatric surgery patient, HIV-positive adults on highly active antiretroviral therapy, emergency complications of chemotherapeutic regimens, the post-cardiac arrest patient, renal dialysis patients and renal transplant patients, evolving medical and surgical care for patients who previously either had different or ineffective treatment modalities has resulted in emergency complications that require recognition by ED providers. Such treatments have often provided wonderful benefits to these patient populations in terms of quality of life and longevity, but have made the ED the venue in which acute diagnosis of treatment failures or complications will take place. For example, the astronomical growth of bariatric surgical procedures requires emergency physicians to recognize the resultant anatomic and physiological changes that take place post-operatively and the side effects and treatment issues that can arise. The increased longevity of HIV-positive adults on highly active antiretroviral therapy has resulted in completely new disease processes that more commonly affect this patient population. With the development of hypothermia treatment post-cardiac arrest, emergency physicians are being called upon to manage patients previously thought to be neurologically devastated in a novel and potentially life-changing way. For all these patient populations, the underlying theme is that new and evolving therapies have created a novel set of disease processes and treatments with which emergency physicians must become familiar.

Complications of social pathologies and lack of medical resources

As seen in the chapters on conditions causing chronic pain, family violence, and the obese patient, the ED also serves as the “canary in the mine” for pathologies that often extend beyond the medical realm [2]. To some extent, this may be seen as the dark side of the increased recognition of the ED as the gateway to the health care system. As such, emergency physicians now must contend with the consequences of failures in our medical system and complexities that result from the breakdown in family relationships or societal forces well beyond their control. For example, the growth in the number of patients with conditions that cause chronic pain coupled with a lack of medical training in pain management and a shortage

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of pain management physicians has left the ED as the venue of last resort for patients who require analgesia, perhaps best managed ideally in the outpatient setting. Increased recognition of child abuse and intimate partner violence has imposed a burden on emergency physicians to treat the medical and social dangers imposed by these conditions. The epidemic of obesity has profound implications for the diagnostic assessment and therapeutic management of patients in the ED. Together, these emerging patient populations represent a profound challenge for emergency care in the twenty-first century.

Chapters in this book are structured so that the reader will have an understanding of the epidemiology, procedural interventions, and disease presentation and management in these patient populations in the ED. Each chapter concludes with a section entitled "The next five years" which is meant to provide the reader with a prediction of where these fields will likely evolve in the near future and the implications of those changes for emergency practice. The contributing authors to this book and I hope that the reader will find that this serves as a starting point for consideration in training programs and clinical EDs as to how best to address the numerous challenging and emerging conditions that will cause patients to present for emergency care.

References

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