

Introduction

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As surgeons we are inextricably linked with tissue injury and its effects, both from the damage which operating inevitably causes and from the treatment of accidental traumatic injury. The body responds to significant local tissue injury, whether surgical or accidental, with a series of systemic changes which affect the functions of vital organs. This surgical stress response is brought about by several pathways involving hormones, inflammation-related cytokines and neural circuits. It leads to alterations in body metabolism, wound healing and immunity and in the function of specific organs. These changes are known collectively as the metabolic response to injury. While these responses are designed to limit damage and begin repair processes, not all the effects are beneficial by any means. They can lead to complications, especially sepsis, which can then amplify and prolong the abnormal processes and lead to or prolong multiple organ dysfunction syndrome (MODS). Given that these metabolic effects of injury can have a significant impact on recovery and survival from many types of surgery and surgical illness, surgeons require an understanding of them in order to care optimally for their patients. Successful management of the metabolic response improves outcomes and forms the basis of modern perioperative care after major surgery as well as the treatment of severely injured and septic patients. This chapter will look primarily at the metabolic responses to injury while shock, fluid balance, sepsis and nutrition are covered in greater depth in Chapters 2 and 25

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