Severe Trauma and Sepsis

Organ Damage and Tissue Repair Xiaobing Fu Liangming Liu *Editors*



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Preface

The prevention, early management, tissue repair, regeneration and rehabilitation of severe trauma are a systematic project with great clinical and social significance. In recent years, great success has been achieved not only in China but also in the world. In the whole management process, early life saving and later rehabilitation management play a key role in effective, timely, and high-quality treatment of severe trauma.

In 2017, we have published a book titled Advanced Trauma and Surgery. That book was a summary of new advances in trauma and surgery, especially in early medical rescue, wound care, traumatic or burn shock, pathogenesis of sepsis, and tissue repair and regenerative medicine. However, many aspects of trauma were not included in that book, such as severe complications, wound care, and latest advances of stem cells in wound management. Thus, it is our desire that another book be published to make up for this deficiency; hence this new book titled Severe Trauma and Sepsis: Organ Damage and Tissue Repair was edited and published. In this book, there are 20 chapters and some new advances such as damage control in wound management and stem cell application in trauma treatment are included. The main theme of this book is to promote the understanding of these new advances and potential applications in basic research and clinical use. The authors contributed to this book are scientists or doctors from fields such as early trauma rescue, vascular surgery, cardiology, neurology, orthopedics, burns, plastic surgery, rehabilitation medicine, stem cells, and biomaterials. All of them are very experienced in their professional fields, and most of the content are their own work.

We would like to thank all the authors for their contribution to this new book. Also, our special thanks go to all those who have provided support for the successful publication of this book.

Beijing, China Chong Qing, China Xiaobing Fu Liangming Liu

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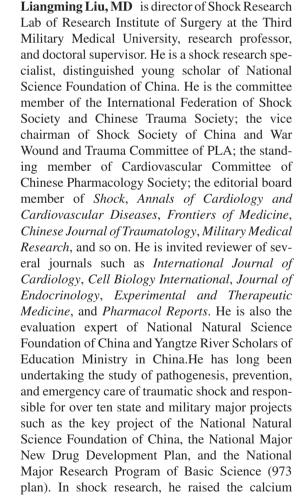
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desensitization mechanism of vascular hyporeactivity for critical illness such as severe trauma and shock and the prevention and treatment measures; raised the new concept of permissive hypotensive resuscitation for uncontrolled hemorrhagic shock; and developed a series of emergent care devices for war wound and trauma. He has published over 350 papers in journals such as *Ann Surg*, *Cardiovasc Res*, *Crit Care Med*, *Crit Care*, *Anesthesiology*, and *Shock* and has obtained 12 national and provisional science and technology progress awards.



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Damage Control in Abdominal Compartment Syndrome

Cheng Zhao and Jianan Ren

Abstract

Abdominal compartment syndrome (ACS) is the endpoint of increased intraabdominal pressure (IAP) which is the result of massive interstitial swelling in the abdomen or rapid development of a space-filling lesion within the abdomen. The intra-abdominal hypertension (IAH) leads to decreased abdomen perfusion pressure (APP) resulting in abdominal viscera dysfunction contributing to multiorgan dysfunction (MOD) and ischemia which lead to high mortality. Measurement has been taken to monitor the IAP for the contradiction between resuscitation and the massive interstitial swelling which lead to IAH. Besides the monitor measurements, damage control was introduced to save the severely injured patients who are on the edge of physiological limit. Damage control resuscitation and damage control surgery were conducted to maintain the balance among physiological limit, resuscitation, and controllable IAP. There is minimal original article about the pathophysiology of ACS. Most results were from clinical trial. Many early studies of IAH and ACS used discordant definitions or cutoff pressure values. In this review, nomenclature will follow the terminology established by the World Society of the Abdominal Compartment Syndrome (WSACS) which has recently been standardized and accepted widely. This chapter reviewed the history and the pathophysiology of ACS and the application of damage control.

Keywords

Abdominal compartment syndrome \cdot Damage control surgery \cdot Intra-abdominal hypertension \cdot Multi-organ dysfunction \cdot Open abdomen

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