

1.1. Measurement Techniques

- Fluid responsiveness in mechanically ventilated patients: a review of indices used in intensive care 3
Karim Bendjelid, Jacques-A. Romand
- Different techniques to measure intra-abdominal pressure (IAP): time for a critical re-appraisal 13
Manu L. N. G. Malbrain
- Tissue capnometry: does the answer lie under the tongue? 29
Alexandre Toledo Maciel, Jacques Creteur, Jean-Louis Vincent
- Noninvasive monitoring of peripheral perfusion 39
Alexandre Lima, Jan Bakker
- Ultrasonographic examination of the venae cavae 51
François Jardin, Antoine Vieillard-Baron
- Passive leg raising 55
Xavier Monnet, Jean-Louis Teboul

1.2. Physiological Processes

- Sleep in the intensive care unit 61
Sairam Parthasarathy, Martin J. Tobin
- Magnesium in critical illness: metabolism, assessment, and treatment 71
Luis J. Noronha, George M. Matuschak
- Pulmonary endothelium in acute lung injury: from basic science to the critically ill 85
S. E. Orfanos, I. Mavrommati, I. Korovesi, C. Roussos
- Pulmonary and cardiac sequelae of subarachnoid haemorrhage: time for active management? 99
C. S. A. Macmillan, I. S. Grant, P. J. D. Andrews
- Permissive hypercapnia — role in protective lung ventilatory strategies 111
John G. Laffey, Donall O’Croinin, Paul McLoughlin, Brian P. Kavanagh
- Right ventricular function and positive pressure ventilation in clinical practice: from hemodynamic subsets to respirator settings 121
François Jardin, Antoine Vieillard-Baron
- Acute right ventricular failure—from pathophysiology to new treatments 131
Alexandre Mebazaa, Peter Karpati, Estelle Renaud, Lars Algotsson
- Red blood cell rheology in sepsis 143
M. Piagnerelli, K. Zouaoui Boudjeltia, M. Vanhaeverbeek, J.-L. Vincent

— Stress-hyperglycemia, insulin and immunomodulation in sepsis	153
<i>Paul E. Marik, Murugan Raghavan</i>	
— Hypothalamic-pituitary dysfunction in critically ill patients with traumatic and nontraumatic brain injury	163
<i>Ioanna Dimopoulou, Stylianos Tsagarakis</i>	
— Matching total body oxygen consumption and delivery: a crucial objective?	173
<i>Pierre Squara</i>	
— Normalizing physiological variables in acute illness: five reasons for caution	183
<i>Brian P. Kavanagh, L. Joanne Meyer</i>	
— Interpretation of the echocardiographic pressure gradient across a pulmonary artery band in the setting of univentricular heart	191
<i>Shane M. Tibby, Andrew Durward</i>	
— Ventilator-induced diaphragm dysfunction: the clinical relevance of animal models	197
<i>Theodoros Vassilakopoulos</i>	
— Understanding organ dysfunction in hemophagocytic lymphohistiocytosis	207
<i>Caroline Créput, Lionel Galicier, Sophie Buyse, Elie Azoulay</i>	
— What is normal intra-abdominal pressure and how is it affected by positioning, body mass and positive end-expiratory pressure?	219
<i>B. L. De Keulenaer, J. J. De Waele, B. Powell, M. L. N. G. Malbrain</i>	
— Determinants of regional ventilation and blood flow in the lung	227
<i>Robb W. Glenny</i>	
— The endothelium: physiological functions and role in microcirculatory failure during severe sepsis	237
<i>H. Ait-Oufella, E. Maury, S. Lehoux, B. Guidet, G. Offenstadt</i>	
— Vascular hyporesponsiveness to vasopressors in septic shock: from bench to bedside	251
<i>B. Levy, S. Collin, N. Sennoun, N. Ducrocq, A. Kimmoun, P. Asfar, P. Perez, F. Meziani</i>	
— Monitoring the microcirculation in the critically ill patient: current methods and future approaches	263
<i>Daniel De Backer, Gustavo Ospina-Tascon, Diamantino Salgado, Raphaël Favory, Jacques Creteur, Jean-Louis Vincent</i>	
— The role of vasoactive agents in the resuscitation of microvascular perfusion and tissue oxygenation in critically ill patients	277
<i>E. Christiaan Boerma, Can Ince</i>	
— Interpretation of blood pressure signal: physiological bases, clinical relevance, and objectives during shock states	293
<i>J.-F. Augusto, J.-L. Teboul, P. Radermacher, P. Asfar</i>	
— Dead-space ventilation: a waste of breath!	303
<i>Pratik Sinha, Oliver Flower, Neil Soni</i>	