



Heart rate variability: a diagnostic and prognostic tool in anesthesia and intensive care.

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Abstract

The autonomic nervous system (**ANS**) plays an important role in the human response to various internal and external stimuli, which can modify homeostasis, and exerts a tight control on essential functions such as circulation, respiration, thermoregulation and hormonal secretion. **ANS** dysfunction may complicate the perioperative course in the surgical patient undergoing **anesthesia**, increasing morbidity and mortality, and, therefore, it should be considered as an additional risk factor during pre-operative evaluation. Furthermore, **ANS** dysfunction may complicate the clinical course of critically ill patients admitted to intensive care units, in the case of trauma, sepsis, neurologic disorders and cardiovascular diseases, and its occurrence adversely affects the outcome. In the care of these patients, the assessment of autonomic function may provide useful information concerning pathophysiology, risk stratification, early prognosis prediction and treatment strategies. Given the role of **ANS** in the maintenance of systemic homeostasis, anesthesiologists and intensivists should recognize as critical the evaluation of **ANS** function. Measurement of heart rate variability (HRV) is an easily accessible window into autonomic activity. It is a low-cost, non-invasive and simple to perform method reflecting the balance of the **ANS** regulation of the heart rate and offers the opportunity to detect the presence of autonomic neuropathy complicating several illnesses. The present review provides anesthesiologists and intensivists with a comprehensive summary of the possible clinical implications of HRV measurements, suggesting that autonomic dysfunction **testing** could potentially represent a diagnostic and prognostic tool in the care of patients both in the perioperative setting as well as in the critical care arena.

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