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FROM THE EDITOR

Acute Cardiac Care – an Interdisciplinary Approach

Theodora Benedek

"George Emil Palade" University of Medicine, Pharmacy, Sciences and Technology, Târgu Mureș, Romania

Acute cardiac care is no longer limited to simply providing life-saving therapy to patients with acute myocardial infarction (AMI). The modern concept of an acute cardiac care unit (ACCU) integrates advanced monitoring systems for cardiovascular emergencies, most frequent in the immediate post-PCI period for patients with myocardial infarction, with cutting edge facilities for treating multi-organ failure resulting from systemic complications of acute cardiovascular conditions.

Data from the BLITZ-3 registry, published by Casella et al. in 2017, encountering the pathologies admitted in the intensive cardiac care units, showed that acute coronary syndromes represent indeed the core business of ACCUs, with 52% of the cases admitted in acute cardiac facilities being represented by AMI (21% STEMI and 31% NSTEMI), while a significant proportion of 34% of patients were admitted for other cardiovascular emergencies such as acute heart failure, arrhythmia, aortic dissection, cardiac tamponade, pulmonary embolism etc.[1]

However, a study published by Sinha et al. in 2017 revealed that an important proportion of patients admitted in ACCUs presented significant non-cardiac comorbidities such as neurologic, hematologic/oncologic, musculoskeletal, infections, gastrointestinal or respiratory diseases.[2] Another study by Holland et al., on the impact of non-cardiovascular illnesses on ACCU mortality, showed that in a model of 100 patients admitted in the ACCU, from 50 patients without acute kidney injury, acute respiratory failure, or sepsis only 1 will die, while from 50 patients with acute kidney injury, acute respiratory failure, or sepsis 11 will die, revealing the impact of coexisting morbidity on cardiovascular mortality in acute settings.[3]

These observations led to a paradigm shift in the concept of ACCUs, which was directly reflected in the guidelines. While the 2005 recommendations of the European Society of Cardiology considered ACCUs as facilities caring for patients in the immediate period of thrombolysis and AMI complications, the position paper published by the European Association of Acute Cardiovascular Care in 2017 defined 3 levels of complexity of ACCUs, level 3 being designed for the most complex cases, usually with associated comorbidities or in critical conditions.[4,5]

At the same time, there is an important interaction between cardiovascular conditions and other comorbidities which require special cardiac attention. This underlines the strong interdisciplinary approach required for providing highly specialized care for complex cardiovascular patients. For instance, preexisting chronic kidney disease, HIV infection, lung diseases, diabetes, inflammatory diseases, or oncological illnesses may lead to a more severe evolution of acute coronary syndromes, as inflammatory reactions play a pivotal role in the pathophysiology of ACS, and systemic inflammation may be exacerbated by these coexisting conditions.[6–11] The history of stem cell transplantation in patients with AMI is another evidence that integrating multiple disciplines (in this case cardiology, hematology, and translational research) in a common effort may lead to better results for cardiac care.[12–14]

Another example of the strong multidisciplinary dimension of acute cardiac care is the requirement to provide specialized cardiac care to patients undergoing major surgery. For instance, patients undergoing radical surgical interventions for extensive cancers (pelvic exenteration, colorectal resections or lung resection etc.) are at a high anesthetic risk, which requires a careful preopera-

Theodora Benedek: Str. Gheorghe Marinescu nr. 38, 540136 Tîrgu Mureș, Romania. Tel: +40 265 215 551, E-mail: theodora.benedek@gmail.com

tive assessment to identify any underlying cardiovascular disease that may predispose to anesthesia-related complications.[15,16] Whenever this assessment identifies a high cardiovascular risk, careful preoperative preparation in cooperation with the heart team is necessary.

However, the current development of interventional techniques or minimally invasive surgery replacing major surgical techniques have led to a significant decrease of the risk of cardiovascular complications in the postoperative period. These techniques have spread rapidly in most fields, such as gastroenterology, gynecology, oncology, and even cardiovascular surgery, and have led to a significant reduction in the duration of hospital stay and the incidence of acute complications, decreasing healthcare costs.[17–19]

All these data suggest that the perspective of acute cardiac care has been rapidly expanded from a narrow field focused on providing acute care to patients with cardiovascular emergencies and mainly acute coronary syndromes, to a more complex field with a strong interdisciplinary dimensions, dealing with complex cases and multi-organ pathologies.

The current issue of Journal of Cardiovascular Emergencies (JCE) integrates a multidisciplinary approach for treating acute cardiovascular conditions. Serum bilirubin, traditionally considered as a marker of liver diseases or hematologic disorders, is now demonstrated to reflect also the severity of acute coronary syndromes, as proved by the research published by Erdogan et al. in this issue.[20] The relationship between hemorheological parameters characterizing blood viscosity and the post-revascularization evolution of an occluded coronary artery reflects the strong link between hematology and acute cardiac care, as proved by Avci et al. in their research.[21] Also in this issue of JCE, the relationship between pediatrics, cardiology, and cardiovascular surgery emphasizes the utility of the extended heart team concept as the most effective way to manage complex cases of congenital heart diseases in the pediatric population.[22]

Interdisciplinarity in acute cardiac care, as reflected in this issue, may represent one of the most actual fields for development in cardiology. Nevertheless, one of the most challenging projections of interdisciplinary approaches is the one related to telemedicine and mHealth devices for providing long-distance management to patients in acute conditions, a field insufficiently explored until now.

CONFLICT OF INTEREST

Nothing to declare.

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