



Common Goals to Face Crisis at Coronary Care Units

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The health care provided to cardiovascular emergencies has undergone several changes in past decades, motivating the re-structuration of health care services. Currently, that subject is being widely discussed by the American Heart Association¹ and worldwide. Consequently, discussing that within the context of our reality is important. Of the innumerable changes, those referring to acute coronary syndrome (ACS) are significant. It is worth noting the logistic and structural needs of the Coronary Care Unit (CCU) with defined protocols of chemical and mechanical thrombolysis. Initially, observation centers for patients with acute myocardial infarction were proposed to prevent death due to ventricular fibrillation. The advent of defibrillation has reduced in-hospital mortality by 50% and disseminated that health care model. The CCU has modified the care provided to patients with infarction, who began to be considered at high risk and in need for constant specialized monitoring, similarly to that provided at the Intensive Care Unit (ICU), at high cost².

The initial proposal of monitoring patients with infarction has been extended to the ACS spectrum, and then to the suspected ACS. The institution of such policy constitutes the first crisis of that health care model. Most patients suspected of having ACS are at low risk, especially those at non-reference emergency units, requiring admission to neither a hospital nor an ICU³. From that crisis, Chest Pain Centers (CPC) have emerged, in an attempt to systematize health care delivery and to reduce the costs of hospital admission⁴.

Redirecting low-complexity patients to CPC, in addition to the longer survival of patients with ACS resulting from reperfusion procedures, has culminated in an increase in the complexity and severity of the patients admitted to CCUs. The profile of such patients has changed, including multiple events and previous interventions⁵. In addition, patients with the following findings have been admitted to CCU: decompensated heart failure; cardiogenic shock; severe heart valve disease; complex arrhythmias; complications

of percutaneous procedures; and infections related to implantable devices. This has motivated the better definition of the role of health care professionals working at CCUs, implying a qualification different from the training provided by many cardiology centers in Brazil. In addition, regulatory entities have required the presence of critical care physicians in the CCU staff, which is no longer an exclusive prerogative of cardiologists.

The demand for intensive care beds has increased and has become an important public health problem in Brazil⁶. Despite the multiple efforts to adjust capacity to demand, several estimates anticipate that the situation will worsen in coming years, because of population aging, the increasing number of procedures, and the prevalence of complex affections⁷. The need for professionals specialized in critical care is particularly important, and a North-American task force has estimated a 22% deficit of such professionals by 2020, which might reach 35% by 2030⁷.

The Brazilian reality does not differ from the North-American one concerning those predictions. The census about ICU facilities conducted by the Brazilian Society of Intensive Care Medicine (Amib) in 2009 concluded that one to three intensive care beds/10,000 inhabitants are necessary. In most Brazilian states, that number is lower than 1, reaching 1.4 to 1.7 in the most developed regions. Although data from some states indicate that their number of intensive care beds is within the recommended range, the reality is different, raising doubt about the methodology used to calculate that number. New studies re-dimensioning the capacity planning and determining priorities for access to resources are being performed⁸. This shortage of intensive care beds results in directing several patients, who should be cared for at ICUs, to CCUs.

In addition, the availability of qualified professionals to work at ICUs is an important problem. The 2008 report of the São Paulo state Regional Board of Medicine about medical specialties evidenced that only 195 physicians held a registration in intensive care medicine, corresponding to 0.4% of the specialist titles of that state. When considering the 388 ICUs registered at that state in 2009, the proportion of 0.27 intensive care medicine title per unit is obtained. Undoubtedly, that number is not in accordance with the ongoing recommendations of Amib and the Brazilian Sanitary Surveillance Agency (ANVISA).

There are several reasons to justify this critical care physician shortage⁹, but no immediate solution is seen. Data from the Committee of Medical Residency of the São Paulo state (personal communication) have shown that vacancies in critical care medicine training centers were not fulfilled

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Table 1 – Characteristics of the different types of Intensive Care Units (ICU). Adapted from Chang et al⁷

Characteristics	Open	Closed	Hybrid
Managements and procedures under the responsibility of attending physicians, who are not exclusive to the ICU	Yes	No	Possible
Exclusive specialist physician responsible for patient's management	No	Yes	Partial
Specialist physician as a consultant	No	No	Possible
Leadership - adherence to protocols; uniform admission and discharge criteria	Weak	Strong	Variable
Conflict - Discordance between critical care physicians and the medical staff responsible for the patient outside the ICU; families have to deal with several health care teams	Little	Intense	Variable

between 2009 and 2011. Even if corrective measures are implemented promptly, short-term personal shortage can be foreseen.

This problem has been widely discussed, and innumerable solutions have been proposed. The first aspect discussed is the organizational structure of ICUs in face of the shortage of professionals. Theoretically, three types of ICU can be proposed and are summarized in Table 1. Closed ICUs seem to be the preferred model, although hybrid ICUs have been assessed. Regarding the presence of critical care-trained professionals, there is evidence that the insertion of part-time professionals who can be contacted from a distance is a feasible alternative. There is little evidence that around-the-clock intensivist staffing provides additional gain over the alternative scheme.

Another solution is the intensification of the critical care medicine training provided to other professionals. In the North-American context, that solution has been directed to emergency physicians, with a joint guideline of medical societies⁶. Recent data have indicated that such guideline established in 2005 has already yielded results¹⁰. In essence, that guideline was aimed at reducing barriers so that physicians of other specialties could be trained in critical care medicine. In Brazil, an opposite trend has been observed, with class protection measures to keep out the competition. Those measures do not take into consideration the need for medical care of increasingly ill patients, who crowd our CCUs. Health care delivery should be based on its flow rather than on specific fields. We aim at assuring continued health care based on successful models for trauma, cerebral vascular accident and sepsis.

Briefly, the profile of CCU patients has changed, becoming increasingly complex and critical, clearly similar to that of ICU patients. This change requires that cardiologists working at CCUs develop skills similar to those of critical care physicians, but such skills are neither recognized nor tested. In addition, the presence of critical care physicians is required at CCUs, so that such facilities are recognized and paid by the health care system in which they are inserted. Although that requirement is aimed at

improving the quality of the health care provided, it is evident that ICUs in Brazil, as well as trained intensivists holding specialist titles, are scarce.

Thus, class protection measures in isolation are inappropriate and certainly will not solve that complex problem. The Brazilian Society of Cardiology must play its role in face of this new reality, leading the medical community and enforcing the recognition of their professionals so that they can play their roles in CCUs. That requirement should be a responsible attitude, with the establishment of qualification criteria. Building a relationship with Amib to establish such criteria to operate in CCUs would be a responsible measure in face of current demands. More than a crisis of the profile of patients admitted to CCUs, we are facing a real crisis with the increase in the number of critically ill patients, which will worsen in coming decades. Because of its pioneer role, Cardiology is currently more structured in critical care settings than other specialties, and will be required to play its role in this increasing crisis.

Author contributions

Conception and design of the research, acquisition of data, Analysis and interpretation of the data, writing of the manuscript, critical revision of the manuscript for intellectual content: Pazin-Filho A, Coelho OR, Schmidt A; Statistical analysis: Schmidt A.

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