EDITORIALS

Complacency in Coronary Care

From modest beginnings in 1962 in Kansas City, Philadelphia, and Toronto, the coronary care unit has become at once an institution and a revolution in the treatment of acute myocardial infarction. The CCU was synthesized from now well known innovations in resuscitation, monitoring, and in the electrical treatment of arrhythmias. Its early history was written by small units of three to four beds which monitored patients for two to four days. Occasional successful defibrillation improved mortality statistics.

As in most revolutions, change was rapid. The nurse quickly evolved into an integral member of the medical team, proficient in recognition of arrhythmias and in electrical defibrillation. Aggressive management of arrhythmias replaced watchful waiting for ventricular fibrillation. The new role of the nurse, coupled with the anticipatory management of electrical problems, combined to reduce the mortality in acute myocardial infarction to less than 20 percent from perhaps 35 percent in the pre-CCU era. While mortality data are difficult to assess, there seemed little doubt that the CCU represented a better way to manage acute coronary disease.

The proliferation of units was rapid. By 1967, physicians and nurses representing hundreds of coronary care units assembled in Washington for a national conference. They heard the CCU pronounced indispensable in the treatment of acute myocardial infarction. Today it may be difficult to find a hospital of more than 200 beds without a CCU. There are few with less than 200 beds not at least planning one.

But in the current groundswell of enthusiasm for the CCU, there are signs of reaction and complacency which may impede its ultimate evolution. The CCU is developed in a hospital at great financial cost to administration and with great effort by its medical staff. Once the unit has been established, changes in instrumentation, number of beds, and operational policies are made with difficulty. Complacency tends to follow even limited successes. For this reason, it may be well to examine signs of inertia which are becoming apparent in coronary care.

The monitoring of patients from three to four or even seven days is inadequate in the light of developing data that fatal arrhythmias continue to occur throughout the hospital course of acute myocardial infarction. At the Good Samaritan Hospital in Dayton, Ohio, post-CCU deaths approach 15 percent even though the average length of stay is nine days. Recent thinking suggests that patients should be monitored for five to ten days after establishment of stable rhythm and for longer periods after resuscitation from cardiac arrest. Such practices require a large increase in the number of CCU beds programmed by most institutions for recently completed units.

As mortality is minimized from arrhythmic deaths, hemodynamic monitoring becomes more important for early recognition and treatment of power failure problems. Extended ECG monitoring and expanded hemodynamic monitoring has produced the concept of graded care which requires further changes in facilities and increased numbers of personnel. Thus, the CCU is no longer an isolated area of a few beds with electronic monitoring. The traditional unit must be supplemented by step-down beds. Many of these must be equipped with telemetry so that observations can be made during increased activity prior to the patient's discharge from the hospital. Other areas must be designed for the primary purpose of treating shock and acute congestive failure. These concepts have not been incorporated in many virtually new units. Many are obsolete before they become fully operational.

Beyond inertia in modifying size, structure, and equipment in coronary care units, there is com-
placency in the medical approach to the patient passing through the unit. The CCU came into being as a place to anticipate and treat acute electrical failure. In this atmosphere, diagnostic emphasis was on whether or not an acute myocardial infarction had occurred. The therapeutic thrust was to carry the patient successfully through the early, relatively brief, high risk period following acute infarction. The great contribution of this approach is not questioned or minimized. However, in the enthusiasm for avoiding catastrophe, many important aspects of coronary care were left unstudied. Review of several hundred patients treated early in our own CCU disclosed that while nearly 100 percent of patients had cardiac enzyme data, many left the hospital without study of blood lipids, uric acid, thyroid status, or carbohydrate metabolism. Patients frequently were discharged without adequate instruction in diet. In most instances, no information was obtained as to ischemic or arrhythmic electrocardiographic changes in response to increased activity during the convalescent phase.

There is striking disparity between the intensity of surveillance in the CCU and the "care as usual" when the patient is transferred to ordinary areas of the hospital. It seems paradoxical for a CCU to use intense and sophisticated approaches to prevent catastrophe early in the course of myocardial infarction and then to permit the patient to leave the hospital without a total approach to the coronary disease problem. Thus, there appears to be, in most hospitals, a serious post-CCU gap in therapy and diagnosis. The existence of this gap is a further manifestation of placency in coronary care.

In spite of early enthusiasm, there have been some who have criticized the CCU as a superficial emergency measure which might deter the profession from its ultimate goal in the prevention of coronary disease. The evolving CCU may, however, come full circle from merely an improved approach to the denouement of the coronary disease process to a center for comprehensive diagnosis, treatment, and long term management. Inherent in the CCU is a great opportunity to study the patient and the disease which brought him there. In a sense, all the events of his life have led to the CCU and all that follows leads from it. Information uniquely obtainable during hospitalization for acute myocardial infarction includes personality structure, personal habits, genetic history, and dietary patterns. Metabolic and physiologic parameters have already been mentioned. Data acquisition should not end with the patient's discharge from the hospital. Assessment of post-hospital survival and performance should be correlated with the many factors outlined above as well as with the apparent severity of the infarction and the specifics of treatment. Thus, the CCU population is an untapped reservoir of data regarding the coronary disease process and attempts to modify its course.

Perhaps the best antidote for placency in coronary care is for hospital administrators, hospital trustees, physicians, and nurses to regard the CCU of today as transitional in size, instrumentation, design, organization, and even objectives. To this end it is incumbent, particularly upon knowledgeable physicians, to inform hospital administrators and trustees who control funds and policies, of the great unfinished tasks in coronary care.

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Factors Affecting Mortality in Acute Myocardial Infarction

Since the reports of Day and Meltzer, almost six years ago, much has happened in the care of patients with acute myocardial infarction. Developments have occurred with lightning speed in the eyes of those who have not been primarily interested in this area of care, but it has been agonizingly slow to those who have watched it closely. It is even more discouraging to realize that man has known how to defibrillate the heart for 70 years and that the first human heart was defibrillated 30 years ago. More than 13 years ago Zoll demonstrated that the heart could be both paced and defibrillated externally. Our speed in utilizing these important milestones has been anything but impressive.

No one knows how many coronary care units exist in the United States. Estimates have varied from 750 to 1,500 out of a total of 7,000 hospitals. Hopefully these will soon be surveyed for better coordination of facilities, personnel, and needs. Many of these are in the early stages of development and one can expect that most of them have not yet reached their full potential in saving lives.

At present, the following have become commonly accepted: 1) one-half to two-thirds of the deaths due to myocardial infarction occur outside of the hospital. Most of these probably die with cardiac arrest; 2) an average coronary care unit can reduce the mortality during the acute phase of myocardial infarction.