EDITORIAL

PROCRASTINATION IS THE THIEF OF TIME[1]: SURVIVING GUIDELINES

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The title of this editorial is the first line of a Shakespearean-style sonnet, penned (the author more accurately stated, "penciled") by a young schoolboy as a punishment for being late. The author later became a professor of poetry at both Cornell and Oxford Universities, and his message from more than half a century ago has a powerful bearing on the problems we face in healthcare today.

Time has an inverse quality—the less time something takes, the greater we value the process. Time has an easily quantifiable value when measured in railway timetables and the speed of processing units in computers. In the management of critically ill patients, the more quickly treatment is started, the more likely the outcome will be satisfactory. The element of time in the resuscitation of an acutely compromised patient is obvious. A dilatory response to the early signs of deterioration in a patient's condition will allow an unchecked decline to continue until the patient may really need the full services of the critical care team. The problem was summed up by R Adams Cowley, founder of the Maryland Institute of Emergency Medical Services, in his principle of the "Golden Hour": "You can spend money, train doctors and nurses, develop drugs . . . but if you wait too long, none of these things help. Time is the one thing you can't buy."[2]

The resuscitation of patients with severe sepsis or septic shock gives a good example of how nipping it in the bud may not only stop the deterioration in the patient's condition, but also be curative. Thirty years ago, Ledingham[3] noted that many of the patients referred to him with septic shock were resuscitated with a prompt and vigorous administration of fluid and that with planned management, a reduction from 71% to 38% in the rate of mortality occurred during a 3-year period. Shoemaker[4] also showed improved outcomes with early resuscitation designed to maximize oxygen delivery. Although their study has been criticized for lacking proper randomization, Heyland and colleagues[5] felt there was a high probability that beneficial results were a consequence of early resuscitation. In 2001, Rivers and colleagues[6] demonstrated that an immediate organized approach to resuscitation of patients with severe sepsis or septic shock was highly successful clinically and cost-effective.

Many patients demonstrate their first manifestations of sepsis outside a critical care unit. Early appropriate resuscitation in cases of septic conditions saves lives. Recently, exciting new guidelines have been established as a result of the Surviving Sepsis Campaign[7] and the work of various others who have been using outreach programs and medical emergency teams (METs) in their intensive care units (ICUs).

Critical Care Outside the ICU

From the early days, the late Peter Safar always maintained on public platforms and in his writing[8,9] that critical care did not begin and end in the ICU; however, the ICU later became the home base for a consultation service that is well established in most major medical centers with multidisciplinary critical care teams. Internally, the main goals have been to provide triage; hopefully, to avoid inappropriate ICU admissions; to give access to those who would most benefit; and, possibly, to provide recommendations on patient care. By and large, this essentially has been a gatekeeping function. Much of the time, management of patients who become critically ill before admission to an ICU may be suboptimal. When this care is suboptimal, the increase in adverse outcomes is appalling. In one study,[10] the mortality rate of well-managed patients was about half (25%) that of a group of insufficiently managed patients. The authors of this analysis showed that the main causes of suboptimal care were a failing of organization: a failure to appreciate clinical urgency,

a lack of supervision, and a failure to seek authoritative advice.

Most critical care staff recognize that when patients are accepted for transfer, patients may go into a sort of limbo until they are admitted to the ICU; this may result from a premature feeling that the patient is now the ICU team's responsibility. With the diminished staffing levels outside the ICU, this attitude is understandable. Unless a patient's problems are superemergent, a few hours may elapse before an ICU bed is available, and the system becomes the "thief" stealing "time" from the patient's chances of survival.

Medical Emergency Team

In 1995, a group in Australia[11] published their findings on the use of a MET. This was an exciting turning point in critical care, because the authors stimulated worldwide interest in the use of an outreach service from an ICU. They were able to demonstrate an improved outcome for patients managed by ICU staff as soon as medical deterioration of the patients was recognized. The benefits appeared to be a lower rate of mortality; shorter length of ICU stay; and, not infrequently, no need for ICU admission, because the patient was adequately resuscitated on the general care floor.

Recently, the results of a more prospective study, also from Australia, were published by Rinaldo Bellomo and colleagues.[12] The MET consisted of a designated critical care fellow and nurse, with specialist backup when requested. Activation of the service was similar to that of the traditional cardiac arrest team. Any member of the hospital clinical staff could initiate a call for the MET by dialing an emergency number on the hospital telephone system. The criteria for calling the MET were based on acute changes beyond certain parameters of a patient's heart rate, systolic blood pressure, respiratory rate, oxygen saturation by pulse oximetry, urine output, and level of consciousness. There also was the very sympathetic human criterion: "Staff member is worried about patient." If the patient was not admitted to the ICU, the MET's action was treated as a medical consultation. The authors (and their patients!) were rewarded with a highly significant decrease in adverse outcomes, rate of mortality, and length of hospital stay. Not all studies on ICU outreach programs have shown such obvious beneficial effects. A large retrospective English study[13] was unable to show a clinically significant change in ICU readmission with the use of an outreach team. The authors suggest that other outcome criteria should be used to assess effectiveness.

With increasing international interest, the ICU outreach team is being considered as a possible standard of care in many countries. Most current teams seem to be operated at the cost of utilizing personnel who are already assigned to other duties (eg, ICU fellow and critical care nurse), effectively producing a service with no extra financial cost for additional staff and an increased workload. This may carry a service for some time, especially with an exciting new project, but it is exploitative of enthusiasm and not a recipe for prolonged success. With an escalating shortage of critical care nurses, many of whom already feel exploited, some of the ICU outreach programs could cause a real manpower problem. The savings created by shorter length of hospital stay, prevention of the need for ICU admission, and reduction of complications have financial value that should stand up well in a cost analysis and can be used to hire more staff or reward people for the extra work involved.

Other Solutions

Completion of the Fundamental Critical Care Support course is now well recognized as a qualification for life support and initial management of a critically ill patient.[14] The credentialing process is similar to ACLS (Advanced Cardiac Life Support), and it is open to healthcare personnel and gives them a more practical training for producing better outcomes in the hospital environment. Developing a cadre of Fundamental Critical Care Support–trained staff would certainly allow a mechanism for optimal patient care before ICU admission or even to avoid it. There is a problem with assigning responsibility for medical care in today's litigious climate. A qualified physician has to be identifiable and at least nominally in charge. If this service were to become billable, then the qualified physician would need to be present. Problems might arise from the patient's physician of record, particularly if the patient did not merit ICU admission.

The hospitalist movement[15] is flourishing, and many hospitalists are credentialed in critical care. In some institutions, hospitalists are well positioned to provide the early critical care to patients before they reach the ICU.

Surviving Sepsis Campaign

In 2002, the Surviving Sepsis Campaign was initiated by the Society of Critical Care Medicine, the International Sepsis Forum, and the European Society of Intensive Care Medicine with the goal of improving survival of patients with severe sepsis. Eleven national and international societies (including the American Association of Critical-Care Nurses) were enjoined to form a guidelines committee to develop recommendations, based on the evaluation of available evi-

dence, to provide guidance for clinicians caring for patients with severe sepsis and septic shock.

An executive summary of the resulting guidelines was published[7,16]; the recommendations were evaluated using current evidence-based practice standards, so that expert opinion and scientifically supported recommendations could be clearly differentiated. Despite the diversity of this group, their decisions were almost unanimous on all their guidelines. The document is a powerful resource on what is known and what is not known about treating septic shock. This is to be considered a living document, as the guidelines will continue to be updated as new evidence becomes available.

The guidelines emphasize the importance of early diagnosis and vigorous resuscitation, based on the protocol developed by Rivers.[6] Most of the maneuvers and parameters are simple to perform and obtain, with little more invasiveness than central venous, arterial, and urinary catheters, and an endotracheal tube if mechanical ventilation is needed. Much of what is recommended could be done in an emergency room before the patient reaches the ICU, but . . .

Time is of the essence!

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