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A Multidisciplinary Approach in the Development of a Hospital-Based Sepsis Protocol

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At Caritas St Elizabeth's Medical Center, a multidisciplinary care group successfully devised and implemented a Sepsis Protocol for the hospital. Medical, pharmacy and nursing health professionals were involved in all facets of the process, from construction of the protocol to implementation and education of medical, nursing and other health professionals.

Introduction

Fourteen months ago, we instituted a sepsis protocol at our hospital, Caritas St Elizabeth's Medical Center (CSEMC), based on the emergency department (ED) centric model. For the initial period, the protocol has been operating successfully, and our mission now is to expand awareness of sepsis and its treatment hospital-wide, as well as to continue to evaluate/improve the existing sepsis program.

Development of the Protocol

In January 2005, members of the Intensive Care Unit (ICU) Executive Committee at CSEMC set forth the proposal to implement a sepsis protocol targeting septic patients in the ED. The committee, comprised of medical, nursing and pharmacy practitioners in intensive care and emergency medicine, introduced this concept based on unfavorable outcomes from recent studies and on recently published guidelines. There is a full compliment of healthcare professionals on the committee; thus, it provides an ideal forum to address such a task, especially regarding the delegation of various duties crucial to a successful implementation. For example, since we did not have the resources to create a formal sepsis team, the protocol had to operate within the existing framework of emergency and critical care personnel, who would be assigned extra responsibilities in taking care of these patients. One potential obstacle was deciding who was responsible for the early insertion of central lines in septic patients presenting in the ED. This and other issues were relatively easily solved, because all personnel affected by the protocol had representation on the committee and were motivated to realizing its success.

A Sepsis Subcommittee was formed, with multidisciplinary input and chaired by the ICU pharmacist. The subcommittee constructed a draft protocol, negotiated the procurement of PreSep® catheters and an in-house lactate assay and set up an education schedule for house staff. The pharmacist and nursing educator undertook the majority of the educational duties, with input from the medical ICU director. Educational endeavors were targeted at ICU and ED nursing staff, medical house staff and pharmacists, with the goal of achieving competency in recognizing and managing sepsis patients urgently and, in the case of ED nursing staff, achieving skills in central venous pressure and oximetry monitoring. This intensive instructional phase lasted six months before the new sepsis protocol was implemented; however, educational activities are ongoing, as we continue to expand and improve the protocol.

We saw some significant improvements within three months of launching the protocol. Administration of antibiotics, insertion of central lines, lactate sampling and initiation of an aggressive fluid resuscitation plan were all accomplished within the median goal time of six hours. There was also good compliance for median 24 hour goals, including glycaemic control, as well as consideration of steroids and activated protein C (Xigris®). The ICU pharmacist collected data for the first six months and reviewed these with the Sepsis Subcommittee on a regular basis. This prompted some changes in the protocol, most notably the option was given to insert a central venous line with a one-time blood sample for central venous O₂ saturation (SCVO₂), rather than using the PreSep® catheter, which monitors SCVO₂ continuously. Subsequently it was determined that the majority of physicians opted to insert the regular central line, possibly because they found the PreSep® catheter more cumbersome. A second recommendation was to procure the FloTrac® sensor, which permits continuous cardiac output monitoring in more complicated cases. This sensor has been used frequently since its introduction, especially in patients with shock of mixed origin and in those with persistent pressor-dependent hypotension. Overall, from previous observation and from our database of almost 60 protocol patients, it is evident that reversal of septic shock has been more rapid and more successful since the introduction of the sepsis protocol.

Conclusions

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The introduction of a systematic, organized plan to recognize and treat sepsis using a multidisciplinary approach has led to greater success in reversing the initial shock episode in septic shock patients admitted to the ICU from the ED.

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