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Special Communication

The Rapid response Sepsis Initiative (RrSI) – An Innovative Concept for Sepsis Management in Low to Middle Income Nations (LMIC)

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ABSTRACT

Sepsis management continues to improve leading to better patient survival however low to middle-income nations (LMIC) are still struggling with high morbidity and mortality of such cases. The timely management of sepsis is crucial therefore for our setting, we propose the concept of a "Rapid response Sepsis Initiative (RrSI) team" within the hospital which would be comprised of various specialists aiming to institute rapid, calculated and appropriate patient management as soon as possible. We believe that with the introduction of a RrSI team, the hospitals in such countries would immensely benefit from focused management of critically ill septic patients.

KEYWORDS

Sepsis team, Emergency, Pakistan

In the turnaround of the year 2016, sepsis was essentially revised by the sepsis task force to be a life-threatening dysfunction of organs due to a dysregulated response of the host to the infection.(1) It is currently estimated that 60-80% of deaths in low and low to middle income countries (LMIC) occur as a result of sepsis.(2) Recently, it has become very clear that the most important aspect in the management of septic patients is immediate identification so that early initiation of antibiotics, rapid application of source control measures and essential resuscitation can be started as fast as possible.(3,4) Once diagnosed, the appropriate management becomes a time-bound priority.

With the advent of the 2016 Surviving Sepsis Campaign guidelines and recent updates for 2018, (5, 6) it has become strictly imperative to follow certain coordinated steps in a very timely fashion. Once the diagnosis of sepsis is considered, a detailed investigation of the possible source should be started. Adequate antibiotic medication should be provided as soon as possible. All measures should be undertaken for collecting appropriate blood cultures prior to antibiotics so that the treatment can be narrowed down once the inciting organism and its respective antimicrobial sensitivities are identified. The updated guidelines continue to re-instate initial resuscitation with a 30mL/kg crystalloid bolus within the first hour of presentation of a septic patient. After this initial bolus, if the Mean arterial pressure (MAP) continues to remain low, early initiation of vasopressors should be considered. Further resuscitation should be guided by either a repeat exam including the assessment of vital signs, cardiopulmonary status, central and peripheral capillary refill, character of pulse, and skin findings or two of the following determinants: Central Venous Pressure (CVP) measurement, Superior vena cava central venous oxygen saturation (ScvO2), bedside ultrasound for Inferior Vena Cava diameter or dynamic assessment for fluid responsiveness. Objective markers such as value of blood lactate levels in the first hour with a goal of normalization within 2-4 hours is highly recommended and strongly related to patient survival. Intravenous corticosteroids should be administered in patients with septic shock only if fluid resuscitation and vasopressors' therapy fail to achieve hemodynamic stabilization. The 2016 recommendations for management of septic patients requiring invasive ventilation, blood or/and blood product transfusion, blood glucose control, renal replacement therapy (RRT), intravenous sodium bicarbonate therapy and enteral feeding remain unchanged. Engaging the family members early in the care of the patient should be started within 72 hours of patient admission in hospital and the need for palliation should be discussed whenever deemed necessary.

Despite the increased awareness of early diagnosis and treatment of septic patients, a large majority of patients do not receive acceptable management. One of the reasons for this pitfall is that septic patients are very complex and not usually without multiple co-morbidities combined with chaotic fluctuation of hemodynamic parameters. The management of such septic cases requires a combination of various factors, including the insertion of central intravenous catheters and intra-arterial lines for monitoring purpose, blood sampling especially for cultures and sensitivities, administration of antibiotics, intravenous fluid therapy and the administration of vasopressors, all of which need to be started as rapidly as possible. Through our experience, we have come to believe that the only possible way of performing all necessary steps and beginning appropriate treatment simultaneously would be through an organized "Rapid response Sepsis Initiative (RrSI) team". Just like trauma teams that exist for management of trauma patients and cardiac arrest teams for admitted patients who suffer cardio respiratory arrest, septic patients can be managed by a team based of several physicians and nurses, possibly an infectious diseases specialist, phlebotomist, radiographers, pharmacists etc depending on availability. In such teams, every member shall have their pre-decided role which he/she has to fulfill by ensuring all the aspects of early management are completed. One member of the team will take up the role of the leader whose purpose will be to command and coordinate the overall management of the patient and shall follow up on desired response while the patient can continue to stay admitted in hospital under any specialty.

The "Rapid response Sepsis Initiative (RrSI) team" should provide coverage at all times in the hospital. A large number of hospitals have now developed 'code sepsis' teams and various studies are positively supporting this approach with better patient outcomes. [6, 7] Considering such an approach might be of benefit in hospitals where the usual standard of care is suboptimal or in medical settings which are estranged to the updated recommendations for the management of septic patients.

The RrSI initiative can have limitless potential in LMICs considering how frequently we are encountering sepsis as a reason for emergency and hospital admissions. The existence of such a team, provided there is the availability of hospital resources to support one, can ensure a professionally coordinated, efficient and well-balanced effort in face of rising patient volumes.

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