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Editorial

Does early goal directed therapy in sepsis still hold relevance in low and middle-income countries?

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Abstract

The efficacy of early goal directed therapy in improving outcomes has been questioned in few recent studies. But, does that hold true for low and middle income countries like Nepal? This editorial expresses the views of the editors on the usual care of sepsis patients and early goal directed therapy in resource limited settings.

Keywords: Early goal directed therapy; low and middle income countries; Sepsis



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When Dr Emanuel Rivers published his landmark trial¹ in *New England Journal of Medicine* in 2001 the emergency and critical care doctors were the happiest ones. The chances of survival of patients with sepsis went up overnight. People became curious and started looking into reasons for the positive change. The interventions that made the differences started getting attention. That was the time Early Goal Directed Therapy (EGDT) came into highlights. The importance of EGDT rocketed after

the Surviving Sepsis Campaign Guidelines endorsed the protocol and started advocating for its implementation in the hospital emergencies as the new standard of care.² The campaign is one of the biggest in the field of management of patients with sepsis. Multiple centres from around the globe have partnered with the campaign and incorporated the protocol in sepsis management. The data analysis does show a significant reduction in the mortality rate after the hospitals started following the protocol.²

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However, the recent publication of some randomised controlled trials (RCTs) that tested the validation of EGDT protocol concluded that the protocol itself does not make a difference in how patients with sepsis are compared to the usual care.³ The trials were big, big in the database and done in 'big' countries, the high-income countries (HICs). The burning question is - does it hold true for the low and middle-income countries (LMICs) as well? What does the usual care mean for LMICs and HICs?

It is important to understand the usual care in the LMICs. Resources, equipment, the nurse-patient ratio, intensivist patient ratio, other staffing ratios, 24 hours coverage by a trained ICU-specialist, lab facilities and the possibility of blood gas measurements are few of possible limiting factors for providing the "usual care" of the high-income countries. Poor compliance to existing protocols is one of the major hindrances for implementation of any protocol based intervention. With rates of sepsis documented to be ranging from 10%⁴ to 54%⁵ in ICUs of our country, Nepal; a very valid question arises: does the EGDT protocol still holds true for LMICs like ours?

The misinterpretation of the data from the "big trials" is highly possible and dangerous, especially in LMICs. The clinical practitioners may have a false impression that the letting go the use of central venous catheters and not sticking to the protocol doesn't make the difference in patient outcome. However, the results of those RCTs need to be interpreted with caution. The usual care that the authors of the research papers talk about itself is a goal-directed therapy and early. The goals of resuscitation in sepsis are still the same- adequate tissue perfusion at the earliest, appropriate antibiotics and appropriate use of fluids and pressors. Not sticking in a central venous catheter doesn't mean the sepsis patients don't need aggressive resuscitation. One can get away with not measuring the central venous pressure but one cannot get away with not doing adequate fluid resuscitation. The same rule applies to other components of EGDT like the use of inotropes and blood products.

The people from HICs have been using GPS devices for many years for direction while driving. The integration of GPS in the smartphones have brought down the use of those GPS devices but does that mean we don't need to know the direction anymore. The 'habits' have only found different ways of living them; the principles still remain the same. EGDT protocol is a 'habit' and principles of treating sepsis are known. Such a habit is yet to be implemented in many of the LMIC settings.

We, the clinical practitioners, from the LMICs, have to assure ourselves that the deviation from the protocolized care in sepsis will do no harm as the 'usual' care runs strong in our emergencies and ICUs. However, the bitter truth is we not only do not have that 'usual' care in our hospitals we do not have a protocolized care for the sepsis patients. So we still need to emphasise on the implementation of

goal-directed therapy and not spread the false impression that the EGDT is dead.

We believe the early goal-directed therapy is sepsis still holds relevance in LMICs; it's just the methods may require some modifications. Unless a 'magic bullet' like hydrocortisone, vitamin c, and thiamine as described by Marik et al⁶, proves to be fruitful in treating septic patients in randomised controlled trials, the foundation of treatment of sepsis should be based on protocolised care. The LMICs physicians should not forget the following principles of treatment of sepsis regardless of the resources, financial constraint or settings:

- Screening for sepsis and its early recognition
- Adequate fluid resuscitation
- Early intravenous antibiotics
- Use of vasopressors, and
- An important question needs to be answered in LMICs setting: Does the patient require transfer to a higher centre and can the patient be shifted now?

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