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EDITORIAL

SepsEast and COVID-19: Time to Make a Difference

Mitja Lainscak^{1,2,*}, Alan Sustic^{3,4}, Jan Benes^{5,6}, Miroslaw Czuczwar⁷, Radmilo Jankovic⁸, Mikhail Kirov⁹, Roman Kula¹⁰, Krzysztof Kusza¹¹, Matej Podbregar^{2,12}, Dorel Sandesc¹³, Ovidiu Bedreag¹³, Konstanty Szuldrzynski¹⁴, Roman Zahorec¹⁵, Peter Hegyi¹⁶, Zsolt Molnar^{11,16,*}

¹Division of Cardiology, General Hospital Murska Sobota, Murska Sobota, Slovenia

²Faculty of Medicine, University of Ljubljana, Ljubljana, Slovenia

³Department of Anesthesiology, Reanimatology, Intensive Care and Emergency Medicine, Faculty of Medicine, University of Rijeka, Rijeka, Croatia

⁴Department of Clinical Medical Science II, Faculty of Health Studies, University of Rijeka, Rijeka, Croatia

⁵Department of Anesthesiology and Intensive Care, Faculty of Medicine in Plzen, Charles University, Czech Republic

⁶Biomedical center, Faculty of Medicine in Plzen, Charles University, Czech Republic

⁷^{2nd} Department of Anaesthesiology and Intensive Therapy, Medical University of Lublin, Lublin, Poland

⁸Clinic for Anesthesiology and Intensive Care, Clinical Center Nis, School of Medicine, University of Nis, Serbia

⁹Department of Anesthesiology and Intensive Care Medicine, Northern State Medical University, Arkhangelsk, Russian Federation

¹⁰Department of Anesthesiology and Intensive Care, University Hospital Ostrava, Czech Republic

¹¹Department of Anesthesiology and Intensive Therapy, Poznan University of Medical Sciences, Faculty of Medicine, Poznan, Poland

¹²Department for internal intensive care, General and Teaching Hospital Celje, Slovenia

¹³"V. Babes" University of Medicine and Pharmacy, Timisoara, Romania

¹⁴Department of Interdisciplinary Intensive Care Jagiellonian University Medical College, Krakow, Poland

¹⁵Department of Anesthesiology and Intensive Medicine, Comenius University, Bratislava, Slovakia

¹⁶Institute for Translational Medicine, School of Medicine, University of Pécs, Pécs, Hungary

*Correspondence: Mitja.lainscak@guest.arnes.si (Mitja Lainscak); zsoltmolna@gmail.com (Zsolt Molnar)

Abstract

SepsEast is an enthusiastic intensivists group initiative launched in 2012, with the aim to facilitate clinical and research activities in the region. Through its actions and with the motto « Together we win, divided we are slow! » several joint research projects in the fields of perioperative medicine, fluid therapy, cardiovascular monitoring and support have been conducted. In the light of the COVID-19 pandemic, the SepsEast community is aware of its mission and is ready to take the challenge. This is mirrored by several educational, clinical and research activities including the development of a COVID-19 Registry; and an observational clinical study on cytokine adsorption in COVID-19 patients. The current pandemic should be our lesson on how to manage the global threat of infectious disease and to develop strategies for effective diagnostic and therapeutic procedures. Hopefully, the SepsEast community will contribute to these developments and scientific advances in general.

Keywords

COVID-19, SARS-CoV-2, SepsEast

1. SepsEast: facts and figures

SepsEast is an enthusiastic intensivists group initiative launched in 2012, with the first SepsEast conference held in Budapest, Hungary. The idea was to bring together experts from Eastern and Western Europe and beyond. Although critically ill patients exist and are managed worldwide, disparities are evident in organizational, financial, and research arenas. SepsEast aimed to reduce these disparities and initiated several actions that were driven through extensive networking around the biannual

SepsEast conference and also through ongoing scientific and clinical collaboration. Particular attention was given to hands-on education and involvement of junior colleagues, as well as research output [1].

Over the years, the SepsEast spirit and motto « Together we win, divided we are slow! » prompted many to give momentum to joint research projects in the fields of perioperative medicine, fluid therapy, cardiovascular monitoring and support [2, 3]. Along with conferences, we also aimed to build teams of experts to summarize and comment on

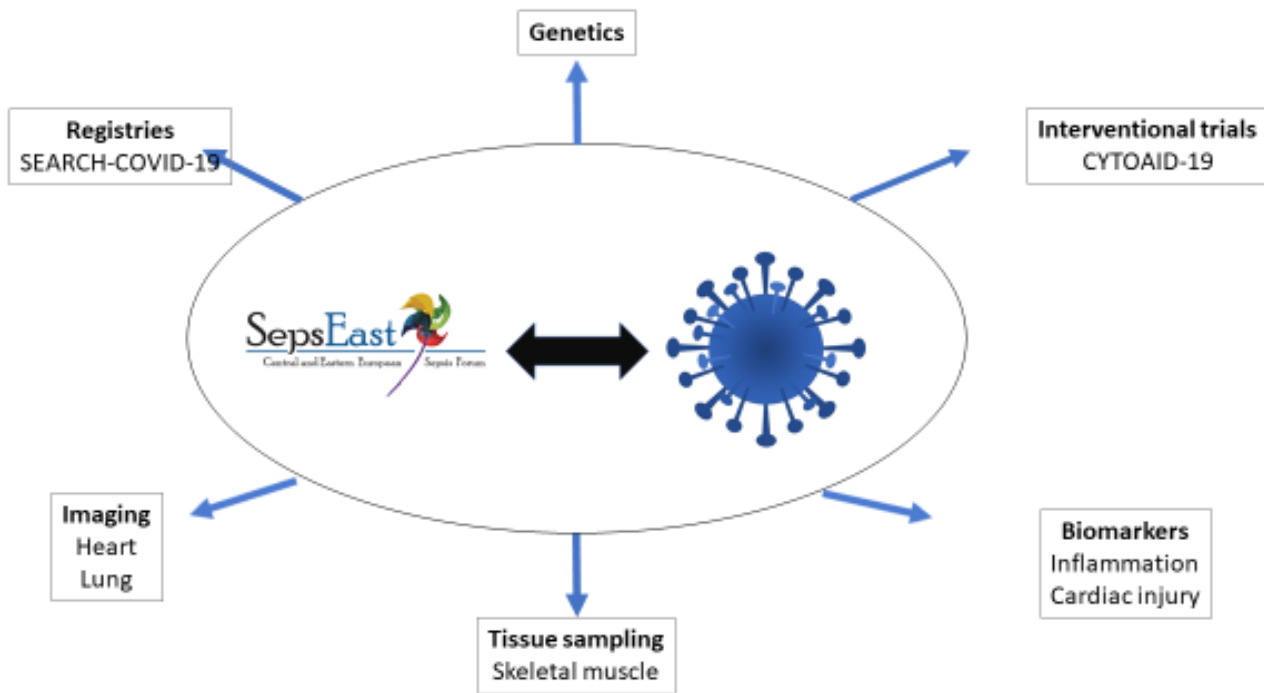


FIGURE 1. SepsEast and COVID-19: interactions and possibilities.

state-of-the-art viewpoints in various fields of intensive care medicine and beyond [4–7]. To some extent, this has also led to involvement in multicenter trials or other multinational registry analysis [3, 8, 9].

2. Effects of COVID-19 pandemic on the intensive care unit (ICU)

At the end of 2019 and still ongoing, the new coronavirus, namely SARS-CoV-2, the Corona Virus Disease 19 (COVID-19) causative agent started its global spread which triggered a world lock-down to varying degrees [10]. The toll to the community in terms of infected people is rising, as are the number of deceased [11]. Despite enormous interest and the exponential rise in publications, we still do not completely understand the mechanisms of action and pathophysiology behind the tissue injury and organ damage caused by the virus. The first retrospective study on hospitalized patients admitted with COVID-19 pneumonia showed that 26.1% required admission to the ICU because of complications that included arrhythmias (44.4%), acute respiratory distress syndrome (ARDS) (61.1%) and shock (30.6%) [12]. Recent data from the United Kingdom including almost 7000 ICU patients, reported devastating results, namely that 67% required mechanically ventilation, and mortality was above 50% [13]. Therefore, it is not surprising that to address open issues and develop therapies, the scientific community, supported through governmental and international support immediately started to orchestrate efforts to find answers to and a remedy for COVID-19 [14].

3. SepsEast and COVID-19: current status and challenges ahead

Along these lines, the SepsEast community has also gained momentum and started research plus various educational activities. For COVID-19, we still lack adequate information in all aspects from epidemiology, clinical course, pathophysiology and management strategies. Through the Institute for Translational Medicine (School of Medicine, University of Pécs, Pécs, Hungary), the SepsEast community would therefore like to initiate and coordinate several activities by reaching out to all interested centers.

Although usually neglected, epidemiological aspects of COVID-19 are of utmost importance to understand the risk of infection, susceptible phenotypes and the potential for viral spread in the community. Same aspects apply to critically ill patients thus we are currently launching a prospective, multicenter international registry on ICU patients treated with COVID-19, called SepsEAST Registry to define the CHaracteristics in CORonaVirus Disease 2019 (SEARCH-COVID-19), which recently received national ethics approval in Hungary [15] and for which the study protocol is in preparation to be registered on ClinicalTrials.gov. We strongly believe that a global approach with significant cross-talk between various aspects and research groups is warranted (Fig. 1).

In addition to data collection, we have also developed a mentoring program (Intensive Tutorial Online – for All, ITO-M). This has already started in Hungary led by the Institute for Translational Medicine with huge success. Tutorials include online webinars in native language [16], and implementation of the most recent scientific knowledge is supported by dedicated mentors covering the whole country

[17]. After just three sessions in three weeks, more than 1000 participants had attended the courses and more than 7000 had watched the webinar later on YouTube. This concept with a similar setup has also been implemented in the other SepsEast member countries as a stand-alone event, or in cooperation with ongoing projects (i.e. AKUTNE.CZ in the Czech Republic).

Even in an epidemic or pandemic, controlled trials should still be regarded as the standard for effective therapy development. In line with this a prospective observational trial has also received ethics approval, the CYTOsorb Analysis of International Data on patients with COVID-19 caused acute respiratory failure-prospective, observational trial (CYTOAID-COVID-19) [18], that aims to test the effects of extracorporeal cytokine adsorption on oxygenation in COVID-19 caused acute respiratory failure requiring mechanical ventilation on the ICU. The study is now ready to start patient recruitment.

Regarding future research plans we would also like to focus on cardiac/ cardio-vascular injuries caused by COVID-19. SARS-CoV-2 has been detected in the myocardium, and there are first reports of myocarditis [19–21]. This calls for a specific cardiovascular registry and efforts to develop this are underway [22]. Moreover, blood vessels may also be a very important target, causing endotheliitis and vascular injury [23]. In addition to laboratory biomarkers, tissue sampling and storage in biobanks, genetic aspects to get insight into pathogenesis and mechanistic pathways are of pivotal importance [24–27]. Heart and lung imaging by echocardiography and magnetic resonance could also provide extremely important information [28–32], which may provide pivotal importance in COVID-19 patients' management on the ICU. To date, only a few trials in COVID-19 patients have been published, sadly with no definite advancement in the field [33].

The SepsEast platform with the coordination of its key opinion leaders and the advanced research facilities provided by the Institute for Translational Medicine could serve as a perfect match for high quality collaborative work.

4. SepsEast and COVID-19: the future

In the most optimistic scenario, we will need at least 12 months before getting the stronger grip of the COVID-19 pandemic. Even when under control, seemingly the world will not be the same as we are used to. The current pandemic should be our lesson on how to manage the global threat of infectious disease and to develop strategies for effective diagnostic and therapeutic procedures. Hopefully, the SepsEast community will contribute to these developments and scientific advances in general.

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CONFLICT OF INTEREST

The authors have not declared any conflict of interest.

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