Short communication

On June 26, 2024, a meeting of the Chronic Critical Illness Research Club (hereinafter referred to as the Club) was held in Arkhangelsk during the Tenth White Sea Symposium. Three reports were presented, which provoked a lively discussion.

1. The three-steps model of critical conditions development: a new concept.

V. V. Likhvantsev, L. B. Berikashvili, M. Y. Yadgarov, A. A. Yakovlev, A. N. Kuzovlev. (Federal Research and Clinical Center of Intensive Care Medicine and Rehabilitology, Moscow, Russia).

The study used the eICU database (USA), which contains data on more than 200,000 hospitalizations in 335 intensive care units in the USA. All adult patients from day 2 to day 21 of hospitalization were evaluated for the presence of ICIS (inflammation, catabolism and immunosuppression) syndrome using biomarkers. The percentage of patients with ICIS was 6.7%, with peak incidence on days 2–3 and 10–12. The risk of developing ICIS by day 21 was 22.5%. A new three-steps model of critical condition with acute, prolonged, and chronic phases was proposed. The peaks of ICIS detection coincide with the time of transition from acute to extended phase (1) and from extended to chronic phase (2). Patients with the ICIS triad had a 2.5-fold higher risk of fatal outcome (P=0.009) and were twice as likely to use vasopressors (P=0.008).

The material was published as an article by *Likhvantsev, V.V.; Berikashvili, L.B.; Yadgarov, M.Y.; Yakovlev, A.A.; Kuzovlev, A.N.* The Tri-Steps Model of Critical Conditions in Intensive Care: Introducing a New Paradigm for Chronic Critical Illness. J. Clin. Med. 2024, 13, 3683. https://doi.org/10.3390/jcm13133683

2. Immune status in chronic critical illness.

E. V. Grigoriev (Research Institute of Complex Problems of Cardiovascular Diseases, Kemerovo, Russia).

Any critical illness is characterized by a systemic inflammatory response, including hyperinflammation and induced immunosuppression (IIS). In the early phase, with a rapid decrease in trigger concentrations, the immune balance is quickly restored without causing organ failure or secondary infections. In the late phase of critical illness, there is an increased likelihood of developing IIS, accompanied by peaks in the pro-inflammatory response. IIS results from disturbances in both innate and acquired immunity and is characterized by the release of anti-inflammatory cytokines, death of immune cells, and excess of immunomodulatory cells. Innate immunity is monitored through measurements of neutrophil function, monocyte antigen presentation, and cytokine production. Adaptive immunity monitoring includes an assessment of lymphocyte and T-cell counts, as well as their functional characteristics. The IIS monitoring algorithm involves identification of patients at risk for IIS, diagnosis of IIS, initiation of treatment and evaluation of its efficacy.

3. Development of concepts of chronic critical illness: a clinical observation.

A. V. Shchegolev (S. M. Kirov Military Medical Academy, St. Petersburg, Russia).

The development of concepts of chronic critical illness continues to this day, as evidenced by the growing number of publications. There is reason to believe that chronic critical illness should be diagnosed at least 14 days after the onset of acute critical illness complicated by multiorgan failure syndrome. When a pathological condition becomes chronic, the direct relationship between the severity of the patient's condition and the underlying cause, which can be treated intensively, is lost. Prognosis is an important aspect of chronic critical illness because the patient may develop a new pathophysiological state that requires intensive care unit treatment. It is essential to investigate the mechanisms underlying this development, as well as ways to mitigate the negative effects of intensive care and to develop early rehabilitation strategies. The cost-effectiveness of ongoing intensive care is also important.

After discussion, it was decided

1. To recognize the three-steps concept of critical illness development proposed by Prof. V. V. Likhvantsev and his team and to support future research in this area.

2. To establish the Club under the auspices of the All-Russian public organization «Federation of Anesthesiologists and Reanimatologists». The Club was founded by professors E.V. Grigoriev, A.N. Kondratyev, V.V. Likhvantsev, M.V. Petrova, G.P. Plotnikov and A.V. Shchegolev.

3. To schedule the next meeting of the Club for November 2024 in Moscow, during the «Life Support in Critical Illnesses» conference.

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