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Short Communication

Pathogetically Substantiated Concept of Diagnosis and Treatment of Postpartum Purulent-Inflammatory Diseases

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Septicemia is the most common cause of neonatal mortality, and it is likely to account for 30-50% of neonatal death every year in low-income countries. However, the problem of postpartum purulent-inflammatory diseases (PPID) is topical for high-income countries as well. Its main reasons are the planning of pregnancies by women of late reproductive age, multiple pregnancies, extragenital pathology, obesity and increased frequency of delivery by caesarean section. The frequency of PPID after labour per vias naturales is approximately 1-3%, while after caesarean section, it is 5-15%, and after urgent caesarean section, it is 15-20%.

The increase of the frequency of caesarean sections can raise the frequency of postpartum purulent-septic complications. As a result, much effort has been devoted to develop effective methods to prevent them. Various schemes of antibiotic prophylaxis and the frequency of their introduction are offered to solve this problem. Current data also suggest planning pregnancy as well as the intake of vitamin D. This can reduce the frequency of forming increased risk groups of PPID.

I propose to use a new pathogenetically-based concept of diagnosing and treating PPID which is based on the pathogenetic principles of their appearance. During the formation of endogenous intoxication, there is interaction between albumin molecules and pathological toxins. This leads to the formation of "defective" albumin, which is unable to perform effectively its detoxificating and transporting functions. Although the total albumin concentration in serum can be within the normal range, its "real effective" concentration is reduced, which leads to the accumulation of toxic components and to the evolution of the disease. These molecular changes in albumin molecules can be recorded by using the method of fluorescence spectroscopy (MFS). The use of intravenous infusion of the albumin solution has been successfully tested on the example of patients with burn injuries and with manifestations of endogenous intoxication in our recent publications [1,2]. This is an effective way of replenishing the stock of valuable albumin in blood serum.

When MFS was used for diagnosing PPID, the following indicators were evaluated: fluorescence intensity and the presence of the shift of maximum fluorescence to the long-wave region. The decrease in the intensity of fluorescence occurs due to the fact that the albumin "overloaded with toxic residues" causes a lightening of lower intensity than healthy full albumin. In particularly difficult cases, the maximum fluorescence displacement in the long-wave side is evident. This occurs when the number of pathological albumin molecules increases to such an extent that it leads to the formation of a new "septic» peak in the long-wave region. This is a poor prognostic sign and may occur in the development of sepsis (the patent of Ukraine №76953) [3].

In our recent practice, we also used MFS for the early diagnosis of PPID in women after the labour (the patent of Ukraine №133472) [4]. The use of MFS can be used not only for diagnosis, but also as a tool for monitoring the effectiveness of treatment. According to the latest international recommendations for the treatment of severe sepsis and septic shock during the infusion therapy of patients with severe sepsis and septic shock who require large amounts of crystalloids, experts suggest using albumin in infusion-transfusion therapy [5-7]. Some authors [8] substantiate two aspects of the use of albumin for patients who are in a critical condition. First, albumin is a natural colloid and has a maximum plasma-expansion effect in comparison with colloids and crystalloids. Second, albumin is the main plasma protein responsible for

the level of colloidal osmotic pressure and performs antioxidant and anti-inflammatory action. Recent studies show that albumin has a fairly high degree of safety. The amount of effective albumin is reduced in patients with PPID. So, it is recommended to give the infusion of the exogenous solution of albumin in purulent inflammatory diseases, even with the normal protein level, including albumin in serum. Now it has started being used effectively also for patients with PPID after labour.

Thus, I propose to use a pathogenetically-based concept of diagnosing and treating PPID. I also recommend adding to the PPID standard diagnostic and therapeutic algorithm the use of MFS, based on the registration of changes in the conformational changes of albumin and the replenishment of its contents in the body in order to improve the recovery and survival of patients.

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