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SPECTRUM OF USING PLASMOSORPTION IN INTENSIVE CARE

Аннотация

По результатам ранее проведенного исследования при применении одного из сорбционных методов дезинтоксикации – плазмосорбции у 75 больных (135 сеансов) были выделены показания и противопоказания к ее применению в условиях интенсивной терапии.

Ключевые слова: синдромы печеночной, почечной, печеночно-почечной недостаточности, детоксикация, плазмосорбция, показания и противопоказания.

Abstract

Using the results of the previous study by applying one of the sorption techniques of detoxification plasmosorption in 75 patients (135 sessions), we determined the indications and contraindications for its application under conditions of intensive therapy.

Key words: syndroms of hepatic, renal, hepato-renal failure, detoxification, plasmosorption, indications and contraindications.

In the first phase of development and implementation of plasmosorption technique (PS) under the conditions of intensive care [1; 2] the authors aimed at testing the technique on as many as possible entities that were accompanied by hepatic, renal, and combined hepatorenal failure. The separate group included
nosological forms that did not have these syndromes. In total PS was used in 75 patients (135 sessions).

Syndrome of hepatic (acute or chronic) failure, especially fulminant form, is characterized by an increasing endogenous intoxication against the background of functional disorders of the liver, encephalopathy, hemodynamic shifts, respiratory failure. The literature of 70-80-ies, the authors of which have already become classics of efferent therapy [3], described cases of successful use of PS at a number of diseases that are accompanied by the liver failure, obstructive jaundice of various origins, primary biliary cirrhosis, cholestatic hepatitis, portal cirrhosis, poisoning with hepatotropic drugs - organophosphate compounds, hypnotics, dichloroethane.

We used PS for obstructive jaundice, which occurred against the background of the pancreatic head cancer, as well as for indurative pancreatitis and cirrhosis of the liver. In addition, it is advisable to include PS in the complex treatment during the postoperative period in acute calculous cholecystitis and acute toxic hepatitis, suppurative cholangitis, the syndrome of massive blood transfusion.

It is necessary to focus on the features of PS administration in case of fulminant course of acute hepatitis of infectious genesis. Our experience shows that in such case we must abstain from PS. This risk group included patients whose daily gain of bilirubinemia was 80-100 mmol / l. The condition is aggravated by possible gastrointestinal bleeding. Surgery and anesthesia can contribute to the rise of liver failure. PS can be a source of additional threats, both in terms of strengthening intoxication ( "draining" effect), and in terms of occurrence of cerebral edema. An equally important problem is the temptation to use PS with little bilirubinemia (total bilirubin within 60-80 mmol / L). Under such circumstances, the patient’s condition is still stable, there is no secondary anemia or disorders in hemodynamics. However, in this case the use of PS is impractical because it contains a number of threats ( "draining" effect, an increase in daily urine output, fluid redistribution among water sectors), which pose new challenges.
to a practitioner. Care should be taken when using PS in patients who have changes in coagulation system in case of hypofibrinogenemia (<2.1 g / l). The procedure may cause the downward trend of fibrinogen, and complications (bleeding, subcutaneous hematoma) will only aggravate the condition of the patient.

Thus, the authors came to a conclusion that PS should not be administered for "mild" bilirubinemia (total bilirubin <60 mmol / l), for fulminant liver failure course (a daily increase in total bilirubin 80-100 mmol / l), for hypofibrinogenemia (fibrinogen <2.1 g / l).

Some patients with syndrome of renal (acute or chronic) failure at the time of the research were already administered [3] PS for acute pyelonephritis, chronic pyelonephritis, urosepsis, chronic sepsis, acute pyelonephritis of operated kidney, nephrolithiasis. Our research confirmed that when comparing PS with hemosorption and plasmapheresis the most diuretic effect occurs with PS. This fact is confirmed by the application of PS in all these groups. However, in case of diseases with syndrome of kidney failure in the event of oliguria and oligoanuria the fact of restoring urine output is particularly important. This phenomenon is more pronounced in renal insufficiency with functional genesis. Another detail should be noted - PS diuretic effect is more pronounced in the syndrome of acute renal failure. In chronic renal failure, or at its aggravation the diuretic effect also occurs against the background of PS, but this effect is not long since organic changes in the kidneys are not eliminated. The authors tested the PS technique with a positive effect in sero-purulent peritonitis, fibrinous and purulent peritonitis, fecal peritonitis, acute calculous cholecystitis, necrotizing pancreatitis, acute intestinal obstruction and acute sepsis. PS was successfully used in acute glomerulonephritis, acute renal insufficiency of different genesis (systemic lupus erythematosus, allergic factor, etc.). In addition, PS is advisable to apply for chronic pyelonephritis, primary chronic glomerulonephritis and chronic glomerulonephritis.
Contraindications to the use of PS in this group can be 2-3 day anuria. In this case, organic changes in the kidneys require more radical detoxification. And this method can be extracorporeal hemodialysis. In addition, PS should be used carefully in increasing azotemia within 8-10 mmol / L every day, in excessive hyperhydration and in a threat of swelling of the lungs and brain. These conditions require immediate involvement of surgical dehydration including extracorporeal hemodialysis with ultrafiltration. When using PS as detoxification in terminal stage of chronic renal failure we did not obtain any tangible effect. Probably, this is due to disorders in redistribution of liquids between the water sectors, excessive hyperazotemia, deep shifts in water-electrolyte metabolism and acid-base balance. These changes become so pronounced that chronic dialysis with ultrafiltration remains the method of choice.

In the group of patients with hepato-renal insufficiency authors recommend using PS for cholelithiasis, obstructive jaundice of different genesis, urinary stone disease, choledochal primary cancer, colon cancer in the postoperative period, destructive forms of acute pancreatitis, pancreatic necrosis, cirrhosis of the liver, acute toxic hepatitis, leptospirosis. It is necessary to note in particular the effectiveness of active surgical detoxification in severe leptospirosis, which should be started as soon as possible (preferably on the first day of the patient’s admission to the hospital). Each day of delay with using active detoxification reduces the chances of a speedy recovery.

Contraindications to the use of PS as well as other methods of extracorporeal detoxification, is the obstruction of the choledochal lumen by a stone or roundworms that is not eliminated by surgery. The use of PS for fulminant forms of leptospirosis can contribute to the deterioration of the patient’s condition. In addition, we should be careful while using PS in increasing hypofibrinogenemia, gastrointestinal bleeding and shock conditions.

Authors did not confine themselves by using PS in nosologies accompanied by the mentioned syndromes. PS was used successfully in asthma, psoriasis,
dermatitis, poisoning with organophosphorus compounds and in drug abuse. In addition, PS was effective in diseases and conditions that had not yet developed the following symptoms: acute sepsis, septic suppurative complications (abscess of the spleen, festering pancreatitis, etc.) in the postoperative period. It is generally known that when the septic focus is not drained, using active detoxification by means of extracorporeal techniques can cause generalization of the process and become a fatal trigger. That is why the inclusion of active surgical methods of detoxification, including PS, in the treatment of septic complications should be made after an active surgical drainage of the focus. In severe exogenous poisoning, including organophosphorus compounds (cholinesterase activity (AXE) <30%), the extracorporeal detoxification should be intensified because the effect is only observed when cleaning 2-2.5 of circulating plasma volumes.

Studying PS efficiency for detoxification in conditions of intensive care made it possible to determine the absolute contraindications of its using: progressing hypotension which cannot be corrected; internal bleeding which was not stopped, hyperthermia > 39 °C, poly allergy, DIC, cardiovascular failure of the III-IV degrees, acute respiratory failure of the III degree, pulmonary edema, and pre-agonal or agonal states.

Thus, PS, possessing the properties to preserve its own proteins, cellular pool of blood, recovery and stimulation of daily urine output, has a wide range of use in intensive care. The "mild" impact on the body allows using PS even in conditions of anemia and hypoproteinemia. Current and future technological solutions can bring the process of PS almost to perfection, ensuring complete safety of patients and ideal resulting effect of detoxification.

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