International Journal of
Health Systems and Medical Sciences

ISSN: 2833-7433
Volume 2 | No 10 | Oct -2023

The Development of a Systemic Inflammatory Reaction Syndrome, the Development of Inflammatory Complications, Multiple Organ Failure and Death in Patients with Acetic Acid Poisoning

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Relevance. It is also important that VPD poisoning is characterized by severe medical, social and economic consequences such as: costly treatment, prolonged disability, disability, high mortality. Poisoning with toxicants of cauterizing action is characterized by high lethality. This is especially true of acetic acid, which averaged 11.7%, respectively, reaching 30.6% in a number of hospitals, and among the deaths caused by caustic poisons, acetic acid was 72.0%. The toxicity of acetic acid is directly proportional to its concentration in the body. 30-70% solution, called acetic essence in everyday life, causes severe chemical burns.

Such tasks as increasing the efficiency, quality and popularity of medical care, as well as the formation of a system of medical standardization, the introduction of high-tech methods of diagnosis and treatment, the creation of effective models of patronage and dispensary, support of a healthy lifestyle and the function of preventive diseases are noted. One of the important tasks in this regard is to improve the methods of diagnosis and intensive therapy for acute poisoning with cauterizing poisons with the identification of characteristic features of the absorbing ability of tissues and membranes and the study of the state of the immune system depending on the course of the disease.

Despite certain successes achieved in the treatment of poisoning with acetic acid, the mortality rate, even in specialized hospitals, is according to various authors from 20 to 70%, depending on a number of aggravating factors hemodynamic disorders are one of the characteristic syndromes of acetic acid poisoning, the incidence of exotoxic shock is 60%. Severe poisoning with acetic acid always leads to the development of multiple organ dysfunction, which is a consequence of the effect of acetic acid on various pathogenetic links. A number of authors note that hypoxia in critical conditions causes the formation of a systemic inflammatory reaction consisting in increased production of pro-inflammatory mediators, activation of cytokines and kinins, increased vascular permeability, increased blood viscosity and microthrombosis. Systemic inflammatory reaction and hypoxia are always associated with activation of proteolytic processes, coagulation and fibrinolytic systems [1.3.5.7.9.11.13].

There are no generalizing comprehensive studies on the problem of systemic inflammation in acute acetic acid poisoning, and methods for correcting this component of the pathogenesis of acute exotoxicosis are insufficiently defined. There is no information about the role of the systemic inflammatory reaction syndrome in the development of infectious complications in patients with acute acetic acid poisoning, which are one of the reasons for increasing the duration of treatment of patients and possible risks of death in the somatogenic phase of acute poisoning. The mechanisms of

pharmacological effects on pathological reactions that are components of the systemic inflammatory reaction syndrome, in particular, such as immunocorrective therapy, have not been determined, which seems relevant.

However, despite many studies, the long-term consequences of acetic acid poisoning are still not fully known. It should be noted separately that to date, traditional methods used in the treatment of acetic acid corrosion for pathological reactions that are components of the systemic inflammatory reaction syndrome, in particular, mechanisms of pharmacological action, such as immunocorrective treatment, have not been determined, and the study of these problems remains an urgent task. Thus, these issues are relevant and require detailed study, since their solution involves the possibility of improving the effectiveness of treatment of this contingent of patients [2.4.6.8.10.12].

The purpose of the study. To determine the significance of the syndrome of systemic inflammatory reaction, immune dysfunction in the pathogenesis of complications of acetic acid poisoning.

In a separate part, modern ideas about the main clinical and pathogenetic aspects of acetic acid poisoning are presented. At the same time, the concept and basic patterns of the formation of the syndrome of systemic inflammatory reaction in acetic acid poisoning are described. The role of immune system dysfunction and endothelial dysfunction in the development of systemic inflammatory reaction syndrome, multiple organ failure and inflammatory complications in acetic acid poisoning are described separately. The data of researchers on endogenous intoxication, activation of hemostasis and fibrinolysis mechanisms and ways of pharmacological correction of systemic inflammatory reaction syndrome are presented.

The clinical material for this dissertation work was collected by the Bukhara branch of the Republican Scientific Center for Emergency Medical Care of the city of Bukhara, Bukhara region with poisoning from acetic acid and/or its derivatives. Immunological studies were carried out at the Institute of Human Immunology and Genomics of the Academy of Sciences of the Republic of Uzbekistan.

To fulfill the tasks set, a step-by-step examination of patients was carried out using complex methods, which include: examination, chest R-graphy, ultrasound of the abdominal cavity, ECG, comprehensive analysis of blood clotting, including toxicological analysis of blood and urine, biochemical, hematological, immunological laboratory tests [13.15.17.19].

all patients, depending on the outcome of poisoning of the criminal code, were divided into 3 groups:

Group I – recovered patients whose course of the disease passed without complications (n=34),

Group II – recovered patients whose treatment and course of the disease took place with inflammatory complications in the form of pneumonia (n=79),

Group III – patients whose treatment and course of the disease took place with inflammatory complications in the form of pneumonia, sepsis, PON with a fatal outcome (n=14).

The analysis of the sexual characteristics of the examined patients showed: men – that the age structure of patients with poisoning of the criminal code was dominated by persons under 40 years of age - 86 (92.9%) of patients

The severity of poisoning was assessed upon admission to the intensive care unit or toxicology department according to clinical manifestations and signs. Signs of the development of systemic inflammatory reaction syndrome were determined clinically by the presence of criteria designated by the Conference of the Consent of the American Society of Pulmonologists (ASSR/SCCM). The severity of the syndrome was determined by the number of signs of organ dysfunction in the patient.

In the presence of 2 signs, the syndrome was assessed as moderate (mild) severity, 3 as moderate severity, 4 as severe.

Assessment of the state of the immune system, blood tests and biochemical samples were carried out at admission, on the 1st, 3rd, 5th day after admission of patients to the hospital.

Interleukins in blood serum were determined by solid-phase enzyme immunoassay. The principle of operation of the set. The kit uses a "sandwich" - a variant of solid-phase enzyme immunoassay. To implement this option, two monoclonal antibodies with different epitope specificity to interleukins were used - TNFa, IL-6, IL-8, IL-10. They were studied by the enzyme immunoassay solid-phase method using the test systems of LLC "Protein Contour" (St. Petersburg).

In patients with UK poisoning, the prothrombin index (PTI) was lower than normal, which indicates the development of hypocoagulation, and the thrombin time was high, which predicted the onset and development of the syndrome of prolonged intravascular coagulation - DIC syndrome.

On day 3, a blood test revealed an increase in PTI (87%), compared with 1 day (80%), but still did not reach the normal level. The fibrinogen level in patients was within normal parameters on the first day, gradually increasing by the 3rd (18.8%) and 5th (40.6%). days of observation. Patients maintained high rates of APTT.

Analysis of coagulogram indicators 5 days after the poisoning of the criminal code revealed that the PTI index in patients did not reach a normal level, and remained low.

Dynamic indicators of the content of pro- and anti-inflammatory cytokines, C-reactive protein, procalcitonin, fibrinogen, and D-dimer are presented. The role of diagnostic sensitivity and informative value of immunological laboratory markers is described in detail.

In order to make a more convincing conclusion about the development of CVD in patients with UK poisoning, the content of cytokines in the blood serum, which are important pathogenetic factors of systemic inflammation syndrome, was analyzed [12.14.16.18.20].

Analyzing the data in of the dynamics of the IL-10 content, which are presented in Table 6, allows us to conclude that in group III of patients with poisoning of the criminal code, who had a fatal outcome as a result of treatment, a multiple increase in the level of IL-10 in the blood was observed already upon admission to the intensive care unit, which exceeded normal indicators in healthy patients, this indicator was 54.2 times, 12.3 times higher than in patients of group I - in whom the treatment and course of the disease passed without complications, and 4.1 times higher than the IL-10 content in patients of group II – in whom the treatment and course of the disease took place with inflammatory complications in the form of pneumonia.

An increase in the content of PCT in blood serum from 7 to 10 times was observed in all patients with acute poisoning of the criminal code already at their admission to the hospital, and they were reliable in relation to the indicator of the content of PCT in healthy. There were no significant differences between the three groups at admission and on the first day. The content of procalcitonin in the blood serum of group II patients – in whom the treatment and course of the disease took place with inflammatory complications in the form of pneumonia and group III patients – in whom the treatment and course of the disease took place with inflammatory complications in the form of pneumonia, sepsis, PON with a fatal outcome increased to a diagnostically significant value for a systemic inflammatory reaction (1,3 and 1.9 ng/ml), respectively, starting from the third day after admission, and on the fifth day after admission in patients of these groups, the indicators were also elevated (1.6 and 3.2 ng/ml), respectively - on the fifth day. Taking into account the fact that in patients of group III – in whom the course of the disease took place with inflammatory complications in the form of pneumonia, sepsis, PON with a fatal outcome, an analysis of the dynamic content of D-dimer in the blood of these patients was carried out.

From the presented data, it can be noted that in patients with poisoning of the criminal code, laboratory signs of progression of the coagulation system towards hypercoagulation were revealed, with an increased risk of thrombosis, in group III patients – in whom the course of the disease passed with inflammatory complications in the form of pneumonia, sepsis, PON with the approach of death.

According to the results of the study, the high probability of developing pneumonia in patients with acute poisoning of the criminal code on the first day is indicated by the concentration levels in the blood: IL-6 from 161 pg/ml and more, IL-10 from 66 pg/ml and more, procalcitonin from 0.8 ng/ml and D-dimer with a threshold value 1.48 mcg/ml., and sensitive and prognostic criteria for the risk of

death in patients with acute acetic acid poisoning are: determined on the first day after hospitalization, blood concentrations of IL-6 from 201 pg/ml and above, IL-10 from 131 ng/ml and above, procalcitonin from 1.9 ng/ml and above, the content of – D-dimer from 2.93 mcg/ml and above, CRP 29 (mg/l) and above Fibrinogen 5.3 (g/l) and above.

Under the influence of standard therapy, the content of C-reactive protein in blood plasma decreased in patients who recovered. At the same time, the preservation of high levels of C-reactive protein in the blood testified to the insufficient effectiveness of the therapy and the risk of death.

Hence, it is concluded that the syndrome of systemic inflammatory reaction is one of the important factors in the pathogenesis of acute poisoning of the criminal code and complications in the form of pneumonia, developing from the first day of poisoning. The results of our study and the data presented indicate that the basis of the course and outcome of complications in patients with CC poisoning is the syndrome of a systemic inflammatory reaction, and in cases of severe CC poisoning, it is CVD in combination with PON.

Conclusion

1. A 10-fold increase in serum procalcitonin was observed in all patients with acute acetic acid poisoning after hospitalization. The content of procalcitonin in the blood serum of patients who had pneumonia and the treatment and course of the disease led to a fatal outcome due to inflammatory complications in the form of pneumonia, sepsis, multiple organ failure, the content of procalcitonin in the blood serum reached a diagnostic value for an increase in systemic inflammatory reaction (1.3 and 1.9 ng / ml), from the third day after admission and on the fifth day, the indicators increased (1.6 and 3.2 ng/ml) in patients of these groups, respectively.
2. Dynamic indicators of the D-dimer content in blood plasma in patients with fatal CC poisoning showed a 13.7-fold (2.93 (2.65; 3.37) mcg/ml) excess of the D-dimer values in healthy people on the first day, progression and increase in the D-dimer index during the follow-up period by 3 and 5 days of treatment.

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