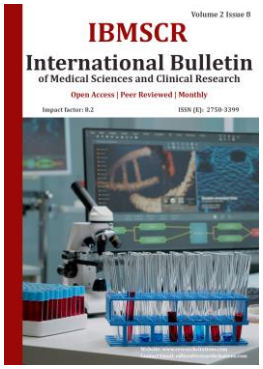

LABORATORY DIAGNOSIS OF ENDOTHELIAL DYSFUNCTION IN PATIENCE WITH HEMORRHAGIC VASCULITIS

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Abstract
Hemorrhagic vasculitis is the most common group of systematic vasculitis. It is prevalence is 13.5 - 25 cases per 100 thousand population per year. The disease is systemic in nature and is typical for people aged 4 to 12 years. Boys get sick 2-2.5 times more often than girls. Left untreated vasculitis can lead to serious complications. Intestinal and pulmonary bleeding, thrombosis, kidney failure, liver failure, heart attack this is not a complete list of the dangerous consequences of the disease. The main reason is damage to the endothelium. Vasculitis can lead the patient to disability and even death.
Key words: hemorrhagic vasculitis, endothelial dysfunction, vasodilatation.
This disease is of an infectious-allergic nature: the main cause of hemorrhagic vasculitis is the presence in the blood of patients with immune complexes and active components of the defense system of proteolytic enzymes. Immune complexes accumulate in the blood stream, and with an excessive amount of antigens or a lack of antibodies, protein formations are deposited on the endothelium of the walls of micro vessels. Factors contributing to the development of the disease are:
- bacterial and respiratory infections, transferred 2-4 weeks before the oset of the disease, which account for up to 60-8- % of all cases of the disease . In most cases, the manifestation of vasculitis is preceded by an acute infection of the respiratory tract. Most often, β hemolytic streptococcus, staphylococcus aureus, adenovirus. A minority of sick children are infected with cytomegalovirus,chlamydia, mycobacterium tuberculosis, hepatitis B virus ;
- administration of a vaccine or serum . To provoke the phenomena of allergic purpura can preventive vaccination, carried out immediately after the transferred RVI (respiratory viral infections);
- some drugs , mainly antibiotics (macrolides, penicillins) NSAID(NonSteroidal Anti Inflammatory drug)s, antiarrhythmic drugs ;
- potentially allergenic foods (strawberries, citrus fruits, chocolate, eggs). Patients often suffer from allergic dermatitis, allergic rhinitis or manifestations of excudative-catarrhal diathesis ;
There are several forms of hemorrhagic vasculitis:
Cutaneous or simple : characterized by the appearance of a specific itchy rash on the lower extremities and buttocks (small pinpoint hemorrhages that rise above the skin and do not disappear with pressure). Over time, the red rash darkens and disappears, leaving pockets of increased pigmentation.
Articular: patients complain of pain in the area of large joints (knee, elbow, hip),their swelling and dysfunction. Articular syndrome may appear in the initial period of vasculitis or occur later. It is often transient and never leads to permament joint deformity.

Abdominal. Abdominal syndrome may precede skin-articular manifestations or accompany them. It is manifested by pain in the abdomen, characteristic features from dead to paroxysmal E. coli. Patients often do not prescribe the exact sensitivity to pain, complain of stool disturbance, nausea and vomiting. Abdominalgia occurs several times during the day and occurs spontaneously or in the first few days of treatment.

Renal: urine becomes pink or red due to the admixture of erythrocytes, it is quantity decreases, protein appears in the analyzes, which are signs of the development of glomerulonephritis and the appearance of a threat of chronic renal failure.

Lightning: characterized by the development of DIC and high blood loss.

Endothelial dysfunction is a systemic pathological process involving the vascular wall of various organs. The main link in the pathogenesis of endothelial dysfunction is a decrease in the synthesis and bioavailability of NO, which may initially manifest itself as a violation of vasodilatation.

A decrease in NO bioavailability in the wall of vessels leads to disturbances in vascular functions, including a tendency to vasoconstriction, an increase in blood pressure , and the development of atherosclerosis. Loss of endothelial NO promotes smooth muscle cell proliferation, platelet aggregation, leukocyte adhesion, and inflammation, thus playing a critical role in the initiation and progression of vascular disease. When the endothelium is damaged, the phenotype of endothelial cells changes from thromboresistant to proinflammatory and procoagulant. Adhesive and procoagulant proteins are exposed on the surface of the damaged endothelium.

Endothelial adhesive proteins include Von Willebrand factor (VWF), a promoter of platelet adhesion and activation, as well as selectins P and E molecules of the immunoglobulin superfamily- ICAM 1(intracellular adhesion molecule 1) ICAM 2 (intracellular adhesion molecule 2) , VCAM - 1 (adhesive molecule of vascular of inflammation and an inducer of platelet aggregation, as well as the transmembrane protein CD 40, tissue factor, a receptor for blood coagulation factors VII/VIIa, and an inhibitor of plasminogen activators (t-PA and u-PA) - PAI- 1, fibrinolysis inhibitor, vasoconstrictors-endothelins.

Through the above adhesive and procoagulant proteins, platelet adhesion to activated endothelium their aggregation, recruitment of immune cells, in particular neutrophils, monocytes expressing tissue factors, and the formation aggregates of leukocytes with platelets occur. Thus, damage to the endothelium leads to an imbalance between vasoconstriction and vasodilatation an increase in the permeability of the endothelium to pro inflammatory cells and macromolecules, an increase in platelet aggregation, leukocyte adhesion, and the release of cytokines.

Conclusions: The results of the tests show that hemorrhagic vasculitis can cause dangerous disease such as kidney failure, liver failure, and heart attack. It is also became apparent that children may have differences relating to vasculogenetic responses when compared to adults. Dysfunction of the endothelium is observed as the main mechanism of organ failure. The mechanism causing dysfunction of the endothelium in patience with hemorrhagic vasculitis have been studied.

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