

*Materials of Conferences***NEW ASPECTS OF PATHOGENESIS
AND THERAPY OF WET BRAIN
AND PULMONARY EDEMA**

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At older persons with a diabetes 2 types quite often arise a acute pulmonary edema. Along with other factors it is connected with insufficiency of adsorption-transport function of erythrocytes. Insufficiency of this function quite often arises also in 2-3 weeks after a serious cranio-cerebral injury. Insufficiency reduces anti-edemas potential of blood. Additional preventive actions and updating of the basic treatment algorithms accordingly are required.

Some features of adsorption-transport function of erythrocytes concern the mechanisms regulating hydration of tissues. This function, first of all, is connected with adjustable adsorption of various substances on erythrocytes surface and their transport to mural layer of blood capillaries. Substances «transported» to mural layer gain a possibility to participate in transcapillary and tissue exchange, to enter into content of interstitial fluid and lymph [1].

It's known that erythrocytes rotating and deforming can relatively easily come through tighter than their own diameter, artery part of capillary. At the same time substances absorbed on erythrocytes, mix and partially replaced by substances of the parietal exchange layer of blood capillary. Our research shows that adsorption – desorption are regulated processes. Thereafter, artery-vein difference in quantity of adsorbed substances is being changed by various influences. It is always positive along with glucose, showing the partial exit of the substance absorbed on erythrocytes from blood to tissue. Instead of retreated glucose, mostly proteins are being adsorbed on erythrocytes surfaces. Thereafter, concentration of protein in wall layer of capillary venous part reduces. On level of venous part of capillaries and venules the concentrate of protein gradient is shifting and correspondingly diffusion-vesicular return of protein increases from interstice to blood. Oncotic pressure in plasma is increasing and oncotic pressure in interstice is decreasing. The content of plasma protein is closely related to adsorbed protein quantity. By increasing of adsorbed protein the part of them shifts to plasma. Thereafter, «filtrate» of interstitial fluid transfers into blood flow. This mechanism is increased by volume gain (as well as adsorbed area of erythrocytes) of carbon dioxide saturate in erythrocytes. The ability of erythrocytes assistance in above mentioned protein return is a part of a general blood anti-edema potential. Glucocorticoids, catecholamines and some other hormones «removal» part of proteins and

other substances from erythrocytes surface and increasing oncotic blood pressure.

Osmolar – oncotic plasma pressure – is the base for blood anti-edemas potential. According to our concept, this potential includes the ability of erythrocytes to assist the return of protein from interstice into blood. There are also other constituents: processes of water linking by protein and other macromolecules of blood, proteolytic and lypolytic processes on the erythrocytes surface, processes of formation and destruction of protein-lipids and other complexes, aggregates [1, 2]. Also the main component of blood anti-edema potential is hormones, which regulates «removal» of protein, glucose and other substances from a erythrocytes surface into plasma. Hormones also are being transferred on erythrocytes surface. In other words, our blood anti-edema potential concept includes not only commonly admitted plasma oncotic pressure. This concept also includes the morpho-functional blood feature, which can affect dynamically to the pressure.

In lungs, at saturation erythrocytes by oxygen the area of adsorption decreases. This feature compensates relatively high level of metabolic cost and consumption of glucose in lung tissue. Ability of lymphatic system for resorption of water and protein from tissue is limited [2]. Therefore, in cases decrease of energy metabolism and glucose utilization in lungs, the risk of genesis acute edema of lungs raises. The possibility of acute edema of lungs emergence raises with age, also with diabetes 1 and 2 types, hypothyroidism, hypoproteinemia, anemia and some other pathologies, when under different causes the protein adsorption on erythrocytes surfaces decreases or general organism energy metabolism decreases. Therefore, for acute edema of lungs emergence risk reduction some actions are necessary, which increases metabolic cost in lungs. At adsorption- transport function of erythrocytes insufficiency, there is a necessity for treatment actions of this insufficiency.

The causes of acute edema of lungs emergence are well known. Among reasons generally define cardiovascular (aortal and mitral heart diseases; heart arrhythmia etc.) and not cardial causes (hepatic and kidney pathology; severe chest injury; hemorrhagic shock etc.). Other reasons also exist which increases filtration pressure in lungs capillary (hypervolemia, hypoproteinemia etc.). At hepatic insufficiency, pneumonia and some other pathology an accompanying insufficiency of adsorption-transport erythrocytes function may happen.

The ability of substances adsorption on erythrocytes directly connected with quantity-quality rates of endoglobular hemoglobin. Adsorption of substances on the erythrocytes surface is decreased by connection of hemoglobin with glucose and some other substances. Therefore, therapy of adsorption –

transport erythrocytes functions insufficiency should include impact and drugs with hemoglobin regenerating attribute. There are a lot of known impact and drugs for different anaemias therapy. At the same time rehabilitation of hemoglobin functions also includes usage of antioxidant and organism sanation. Glucose is linked with erythrocytes hemoglobin strong enough. Therefore, one of the first aid methods is the replacement of donor part erythrocytes with high or normal active (not glyated etc.) hemoglobin content. In all cases, when adsorption-transport erythrocytes functions insufficiency is poorly affected by therapy, donor erythrocytes or donor blood is required.

It is also timely at 2-3 weeks of therapy of severe cranio-cerebral injury. To the number of actions on prevention and therapy of deficiency we include: old erythrocytes extraction with further injection of erythropoiesis stimulator or injection of donor erythrocytes. According to our data, at slowing-down of utilization of old erythrocytes, positive effect can be achieved by Dorokhov antiseptic use (ASD-2, second fraction)

The question of utilization increase of glucose in lungs, require clinical approach and additional research. Probably local substances inhalation, stimulating metabolism (analogs of existing thyroid gland hormones and other drugs), will raise energy metabolism only in lungs. Influence on specified biologically active points of lungs meridian also can increase energy processes in this organ.

«Stress – regenerative» reaction was evolutionary generated in organism to cranio-cerebral injury, directed for recovery of injured tissue and dysfunction. With availability of initial «health reserves» total metabolism increased many times with body temperature raise, additional glucose intake, intensification of «receipt» glucose from lipids and proteins etc. In this case utilization of glucose in brain tissue is on the highest level. This also could not exclude appearance or increase in adsorption-transport erythrocytes functions insufficiency. Thereafter, many appropriate comments and suggestions according acute edema of lungs also directed to brain tissue edema. It is important to mark, very often in 2-3 weeks after serious craniocerebral injury emaciation of above mentioned protective-restorative reaction begins. Therefore, possibly, in this case it is necessary to maintain the necessary level not only glucose, but also appropriate «stress» hormone. Among them, according our data, we should draw attention on dopamine (Dopaminum). This hormone, according to animal experiments, shows evident effect on «hormone mobilization». This effect is very similar according to observation of astronauts at land day [3].

Return of protein from interstitium to blood flow with above mentioned mechanism – is relatively slow process. The decrease in adsorption-transport erythrocytes functions itself is not an underlying cause of acute edema of lungs, brain and

other tissue and organs. Offered actions – this is just an addition to well known treatment algorithms.

Our research in applied aspects in adsorption-transport erythrocytes functions [4], undoubtedly, can be accelerated by cooperating with other organizations. Additional financing required.

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OVERWEIGHT AND OBESITY IS MODERN PROBLEMS IN DEPRESSIVE DISORDERS

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Continuous growth of overweight and obesity in the world, the European region, including the Russian cities is marked. Some psychiatric disorders, in particular depression are connected with obesity. Our preliminary data has shown that depression with bulimia or with binge-eating, low self-esteem, difficulties in social adaptation were found out in 53,9% of women among 359 who sought for psychotherapy care.

Overweight and obesity often lead to health disturbances. By the calculations made in 2005 by World Health Organization 1,6 billion adult people in the world have overweight and 400 millions suffer from obesity. It is predicted that by 2015 these figures will increase up to 2,3 billion and 700 million respectively. The sharp growth of the number of people with overweight and obesity in the countries with low and middle income, including Russia, especially in city areas, is registered [9]. Overweight and obesity contribute to a large proportion of diseases shortening life duration and adversely affecting the quality of life. More than one million deaths related to excess body weight in the WHO European Region [2].

Purpose. The analysis of various data about overweight, obesity and depression.

Methods. Short polemic clinical overview on depression and overweight.

Overweight and obesity can independently cause conditions with life quality decrease owing to