INDEXES GAS STRUCTURE VENOUS OF A BLOOD AT CEREBRAL VIOLATIONS AT THE PATIENTS AFTER CORONARY ARTERY BYPASS GRAFTING

Zalesskay J.V., Kopyonkina M.V.,
Misura O.A., Novikov A.J.
VGMU Faculty of pathological physiology, Vladivostok

The success cardiosurgery operation is evaluated not only on a survival rate of the patients, but also on a development of those or other complications. Cerebral pathology is the most vulnerable link and is in center of attention from the moment of origin cardio surgery, as operations on heart, is especial in conditions of an artificial circulation, have multifactor risk for all levels of nervous system calling cerebral violations. These violations wear a rather wide spectrum of damages - from irreversible changes resulting in to a vegetative status up to noticeable, dysfunctions.

The purpose of our operation consist in study of dynamic of indexes (pH, pCO2, pO2, SO2) gas structure venous of a blood at cerebral violations at the patients with coronary artery bypass grafting in perioperative, operational and postoperative periods. The obtained datas treated by a method of a variational statistician with use of criterion Studenta and correlation analysis.

The analysis of results of research of indexes (pH, pCO2, pO2, SO2) gas structure of a venous blood of the patients with cerebral complications after coronary artery bypass grafting has shown, that before operation all examined(investigated) indexes were within the limits of norm (aberration were insignificant). During operation are observed: a metabolic alkalosis 7,46 ±0,047; a heightening pCO2 at 10 patients 45 ±3,1 and lowering at 5 - 33,6 ±1,8; substantial growth pO2 35,3 ±53,7; also heightening SO2 79,3 ±20,7. After operation (in 24 hours) the value pH was normalized - average has made 7,4; pCO2 at six patients was within the limits of norm from 36,6 up to 46,5; at five - is raised(increased) 47 ±1,5; at stayed four the insignificant acapnia - 32,3±2,1 was marked; at five patients after coronary artery bypass grafting the anoxemia from 26,7 up to 34,4. was observed; at three appreciable heightenings pO2 57,2 ±6,3; the value pO2 stayed 7 patients corresponded(met) to norm on the average 39,3; SO2 of a venous blood at two patients 70, 2 and 70,5 - norm; Also at 2 the heightening of an index - from 85 up to 100 was marked; at 11 patients the lowering SO2 65 ±4,7 was observed.

Thus it is possible to tell, that the cerebral complications after coronary artery bypass grafting, connected with a hypoxia, embolism, arterial anoxemia and systemic hypotension, are accompanied by violations of indexes of gas structure of a venous blood, which are characterized on the early postoperative period by a metabolic alkalosis, heightening pCO2, and also lowering pO2 and SO2. In the postoperative period the normalization of these indexes at 70 % of the patients is observed.

At holding the comparative analysis of violations of indexes of gas thestructure venous bloods at datas of the patients can be told, that at 80 % the lowering SO2 and normalization pH is marked, the first factor results in a hypoxia, violation of security of cells by Oxygenium and according to violation of fabric respiration.

The basic reasons of cerebral complications at operations on heart: an artificial circulation, arterial anoxemia, embolization, intracerebral hemorrhage, systemic hypotension, presence initial cerebral of diseases.

There are two principal mechanisms damaging a brain is a hypoxia and reperfusion at restoring bloodstream. The hypoxia starts pathobiochemical cascade responses, which flow past in all basic departments a CNS and cause changes neuronal pool, microglial activation and dysfunction, combined with them, of trophic security of a brain. The maintenance perrusion of a brain in the fixed boundaries is provided autoregulation. Failure autoregulation, first of all through change pO2 and pCO2 in blood, is possible through: 1) The augmentation pCO2 carries on to augmentation of a blood supply owing to lowering vascular resistance and on the contrary; 2) The hypoxia carries on also to lowering vascular resistance and, as a consequence, to augmentation of a blood supply.

Thus rating of dynamic of change of indexes of gas structure of a venous blood has the important value in prediction and detection of cerebral complications.

ПОКАЗАТЕЛИ ГАЗОВОГО СОСТАВА ВЕНОЗНОЙ КРОВИ У БОЛЬНЫХ С ЦЕРЕБРАЛЬНЫМИ ОСЛОЖНЕНИЯМИ ПОСЛЕ АКШ (АОРТОКОРОНАРНОЕ ШУНТИРОВАНИЕ)

Залесская Ю.В., Копёнкина М.В.,
Новиков А.Ю, Мисюра О.А.
Владивостокский Государственный Медицинский Университет; Владивосток

Успех кардиохирургической операции оценивается не только по выживаемости больных, но и по развитию тех или иных осложнений. Цереброваскулярная патология является наиболее уязвимым звеном и находится в центре внимания с момента возникновения кардиохирургии, поскольку операции на сердце, особенно в условиях искусственного кровообращения, обладают многофакторным риском для всех уровней нервной системы, вызывающих церебральные нарушения. Эти нарушения носят довольно широкий спектр повреждений – от необратимых изменений приводящих к вегетативному состоянию до малопроявляющихся, малозаметных когнитивных дисфункций. Цель нашей работы заключалась в изучении динамики показателей (pH, pCO_2, pO_2, SO_2) газового состава венозной крови при церебральных нарушениях у больных с АКШ в периоперационный, операционный и послеоперационный периоды. Полученные данные обрабатывали методом вариационной статистики с использованием критерия Стьюдента и корреляционного анализа. Анализ результатов исследования показателей (pH, pCO_2, pO_2, SO_2) газового состава венозной крови больных с церебральными осложнениями после АКШ показал, что до операции все исследуемые показатели находились в пределах нормы (отклонения были незначительными). Во время операции наблюдаются: метаболический алкалоз pH: