

use (3–6 months) analgesic nephropathy may develop in the form of interstitial nephritis, nephrotic syndrome, renal papillary necrosis and renal failure due to the direct toxic damage of the differentiated epithelium distal renal tubules (necrobiotic changes with damage to the basement membrane). Also post-renal failure may be due to obstruction of the lumen by the intratubular desquamation cells remains after papillary (tubular) necrosis of the kidneys. Nephrotoxicity is most pronounced in patients with heart failure, renal failure, hypertension, elderly patients, and when combined with nephrotoxic drugs – gold preparations, antibiotics (aminoglycosides, Afoteritsin B, tetracyclines) and combined multicomponents antiinflammatory drugs. The clinical nephrotoxicity monitoring is recommended in terms of creatinine in the blood in these cases necessarily.

The work is submitted to the International Scientific Conference “Innovative medical technologies” France (Paris), March 18–25, 2015, came to the editorial office on 19.01.2015.

CHANGE OF N-TERMINAL PRO-BRAIN NATRIURETIC PEPTIDE IN PATIENTS UNDERWENT CORONARY ARTERY BYPASS GRAFTING

¹Osipova O.A., ¹Nagibina A.I., ¹Suyazova S.B.,
¹Shekhovtsova L.V., ²Konstantinov S.L.

¹Belgorod State National Research University, Belgorod,
e-mail: osipova_75@inbox.ru;

²Belgorod Regional Clinical Hospital
of St. Iosaph, Belgorod

Chronic heart failure is a widespread disease with a progressive course and poor prognosis. N-terminal pro-brain natriuretic peptide (NT-proB-

NP) are commonly used in the diagnosis of chronic heart failure (CHF). The release of NT-proBNP can occur even without an increase in diastolic pressure in the left ventricle (LV), during the brief episodes of myocardial ischemia. Revascularization for a myocardium can be one of the most effective methods of restoration of contractile abilities of a myocardium at the expense of influence on the basic pathogenetic mechanisms of CHF. Although there are few researches on the induction of ischemic myocardium release and prognostic role of NT-proBNP in patients undergoing myocardial revascularization, the results are very patchy and inconsistent.

Purpose. To determine the content of the NT-proBNP in patients underwent coronary artery bypass grafting (CABG), depending on the level of ejection fraction (EF) before surgery in the postoperative period.

Methods. 63 patients underwent CABG under on-pump without intraoperative myocardial damage were included for study. Patients were divided into two groups depending on the magnitude of left ventricular ejection fraction (LVEF): 33 patients with EF < 50 % on average (45,0 ± 7,3)% and 30 patients with EF > 50 % on average (52,0 ± 5,5)%. NT-proBNP levels were determined within 12 days after surgery.

Results. Coronary artery bypass surgery resulted in improved hemodynamic indices of left ventricular myocardium, as evidenced by an increase in ejection fraction in both groups with EF < 50 % and EF > 50 % to 6,5 % and 70 %, respectively (p in both cases < 0,01). After coronary bypass surgery NT-proBNP levels were increased by 4,3 times in patients with EF < 50 %, and in patients with EF > 50 % – by 3,4 times (Table).

NT-proBNP level in patients after coronary artery bypass grafting, depending on left ventricular ejection fraction (M ± SD)

NT-proBNP	Controls n = 21	EF < 50 n = 33	EF > 50 n = 30	p		
	1	2	3	1–2	1–3	2–3
Before surgery, fmol/ml	5,1 ± 0,6	16,6 ± 9,5	10,9 ± 1,1	< 0,001	< 0,001	< 0,01
Postoperative, fmol/ml	5,1 ± 0,6	71,9 ± 33,0	37,4 ± 2,3	< 0,0001	< 0,001	< 0,001
p	> 0,05	< 0,0001	< 0,0001	–	–	–

Conclusions. The increase of NT-proBNP in patients after CABG on improved hemodynamics, increase in EF and absence of myocardial necrosis confirm the assumption that reversible ischemia can cause increased synthesis of NT-proBNP in the myocardium, the effect of which is aimed at the activation of myocardial healing

process and is not associated with changes in hemodynamics.

References

1. Association of left ventricular diastolic dysfunction with elevated NT-pro-BNP in general intensive care unit patients with preserved ejection fraction: a complementary role of tissue Doppler imaging parameters and NT-pro-BNP levels for adverse

outcome / Ikonomidis I., Nikolaou M., Dimopoulou I., Parask-evaidis I. // *Shock*. – 2010. – Vol. 33, № 2. – P. 141–148.

2. BNP and NT-proBNP predict echocardiographic severity of diastolic dysfunction / J. Grewal [et al.] // *Eur. J. Heart Fail.* – 2008. – Vol. 10, № 3. – P. 252–259.

Central TNF inhibition results in attenuated neurohumoral excitation in heart failure: a role for superoxide and nitric oxide / A. Guggilam [et al.] // *Basic Res. Cardiol.* – 2011. – Vol. 106, № 2. – P. 273–286.

3. Comparative analysis of the ambulatory blood pressure monitoring parameters in patients with arterial hypertension and chronic heart failure / Osipova O.A., Suiazova S.B., Vlasenko M.A., Godlevska O.M. // *Fundamental research*. – 2012. – № 7. – P. 146–150.

4. Handheld ultrasound, B-natriuretic peptide for screening stage B heart failure / K. Hebert [et al.] // *South Med. J.* – 2010. – Vol. 103, № 7. – P. 616–622.

5. N-terminal ProBNP levels can predict cardiac failure after cardiac surgery / M. Cerrahoglu [et al.] // *Circ. J.* – 2007. – Vol. 71, № 1. – P. 79–83.

6. N-Terminal Pro-brain Natriuretic Peptide Identifies Patients at High Risk for Adverse Cardiac Outcome after Vascular Surgery / Mahla Elisabeth M.D., Baumann Anneliese M.D., Rehak Peter Ph.D., Watzinger, Norbert M.D. // *Anesthesiology*. – 2007. – Vol. 106 (6). – P. 1088–1095.

7. Perioperative application of N-terminal pro-brain natriuretic peptide in patients undergoing cardiac surgery / Liu H., Wang C., Liu L., Zhuang Y., Yang X., Zhang Y. // *Journal of Cardiothoracic Surgery*. – 2013. – Vol. 8. – P. 1.

8. Structurally functional condition of a left ventricle myocardium and markers of defeat of a myocardium of patients who suffer stenose coronary atherosclerosis after aortocoronary bypass grafting / Pribylova N.N., Osipova O.A., Vlasenko M.A., Vlasenko O.A. // *Heart*. – 2010. – Vol. 9, № 2 (52). – P. 106–109.

The work is submitted to the International Scientific Conference “Modern science technologies”, Spain (Tenerife), November 21–28, 2014, came to the editorial office on 12.01.2015.