

3.2.3. Investigation of the cardioprotective effect

Heart failure and several types of arrhythmias due to ischemic heart diseases play central role in the mortality of the cardiovascular diseases.

The aim of the study was to demonstrate the antifibrillatory effect of the supplemented humic acid (SHA) during a reperfusion period following 25 min coronary occlusion in isolated rat cardiac preparation. It was possible to obtain experimental data about cardioprotective action of HUMET[®]-R Syrup given in repeated-dose long-term administration.

SHA was administered in an oral dose of 10 mg/kg for two weeks. At the end of the treatment, the heart was exteriorized, a canule was inserted into the aorta and perfusion was carried out for 10 min

³³ Szakmári, É., Hudák, A.: *H-M- Doc.* 42-1-11, 1997

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maintaining constant perfusion pressure, according to Langendorf. During this period, a canule was introduced into the right atria using Neele's method. The value of 'preload' and 'afterload' was kept constant during the entire period of the experiments.

In these experiments, the coronary blood flow, the aortic blood flow, the heart rate, the left ventricular enddiastolic pressure (LVEDP) were measured and the ratio of onset of the ventricular fibrillation (VF) and the first derivative of the upstroke phase of the left atricular pressure (i.e.: contractility: dp/dt_{max}) were calculated.

The results of the experiments are shown in the Table 1.

Table 1: Anti-ischemic effect of 2-week EHA-treatment

Treatment	CBF ml/min	AF ml/min	HR min ⁻¹	VF %	+dp/dt _{max} kPa/s	LVEDP kPa
before ischemia (n = 8)	22.9 ±0.9	43.4 ±1.5	265 ±6.0	0	1026±45	0.51 ±0.04
after ischemia	20.4 ±0.9	13.3 ±2.5	260 ±3.9	87.5	609 ±53	1.53 ±0.09
SHA treatment 10 mg/kg p.o. for 2 weeks (n = 8)	24.5* ±0.8	24.5* ±2.8	263 ±3.0	12.5*	788* ±36	1.09* ±0.08

p<0.05 X ± S.E.M. (after ischemia or SHA)

A two weeks oral administration of 10 mg/kg SHA could improve all parameters which became pathologic after ischemia. Although the dose-dependent character of the response remained to be studied, the cardioprotective effect of SHA seemed to be proven³⁴.

³⁴ Ferdinándy, P.: *H-M-Doc.* 39-1-08, 1997