DIFFICULTIES IN THE MEASUREMENT OF THE CONTRACTILE ACTIVITY OF ARTERIES USED AS CORONARY ARTERY BYPASS GRAFTS AFTER LONG-TERM VASODILATORY TREATMENT

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The aim of this study was to investigate the method of measuring the contractile activity of arteries used as coronary artery bypass grafts. Distal segments of the left internal mammary artery (LIMA) were obtained from 33 patients aged 38-73 at the time of routine revascularisation surgery. The local ethical committee approved the study.

The patients’ preoperative long-term medications included β-blockers (metoprolol, atenolol, bisoprolol), ACE-inhibitors (captopril, enalapril, quinapril, cilazapril), calcium channel antagonists (amlodipine, felodipine, diltiazem), and nitrates (NTG i.v., isosorbide mononitrate).

Under a dissecting microscope, arterial rings (diameter 1-3mm) were prepared. The rings were mounted in an organ bath containing a physiological salt solution of pH 7.4 and a temperature of 37°C, and bubbled with carbogen. The preparations were allowed to equilibrate for 3-8 h. During the equilibration period, the passive tension was adjusted several times until the resting tension became stable at 6 mN. Tissue reactivity was investigated depending on the incubation time. The responses of the arterial rings to 80 mmol K⁺ and 10⁻⁶ M noradrenaline were recorded under isometric conditions. The quantification of the responses was done by calculation of the under the curve areas of contractions. The area was measured from the baseline over a 10 minute period after each stimulus.

No correlation was found between the treatment and the reaction to K⁺ and noradrenaline.