

**ABSTRACTS**



## Symposium

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**Urapidil –  
a new  
cardiovascular  
agent**



Chairmen: Prof. Frohlich, New Orleans  
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### Acute and Chronic Effects of Urapidil in Congestive Heart Failure with Hypertension

In patients with hypertension and the history of left heart failure the reduction of the afterload should be a decisive approach to improve the myocardial performance.

Prior to demission 12 patients (mean age 58 a; b.w. 84.8 kg) underwent invasive stress testing (volume loading by lifting the legs to the pedals of the ergometer; steady-state bicycle work in the recumbent position). The pressure in the pulmonary artery was monitored by a floating catheter (F4), the arterial blood pressure was measured by auscultation. Ergospirometric data ( $VO_2$ ,  $VCO_2$ , VE, ect.) were analysed continually and the derived parameters of central hemodynamics were calculated on-line due to the direct Fick's principle.

In comparison to control data (C) Urapidil (25 mg i.v.) caused a significant decrease of the mean pulmonary (PApm-C:  $29.7 \pm 2.2$  mm Hg;  $-33.1\%$ ) and mean arterial pressure (BPpm-C:  $114.4 \pm 3.0$  mm Hg;  $-7.6\%$ ) during volume loading. The heart rate increased by  $12.0\%$  (FH-C:  $82.8 \pm 2.4$  b/min) and the cardiac index declined by  $2.9\%$  (CI-C:  $3.3 \pm 0.2$  l/min/m<sup>2</sup> bsa).

At work (mean load  $44.2$  Watt  $\pm 6.6$ ) the mean arterial (BPpm-C:  $131.9 \pm 3.7$  mm Hg;  $-8.2\%$ ) and mean pulmonary pressure (PApm-C:  $50.7 \pm 2.9$  mm Hg;  $-37.0\%$ ) fell significantly. The heart rate was elevated by  $4.3\%$  (FH-C:  $113.3 \pm 3.6$  b/min) and the cardiac index by  $12.4\%$  (CI-C:  $4.31 \pm 0.3$  l/min/m<sup>2</sup> bsa). The oxygen uptake remained constant ( $VO_2$ -C:  $0.94 \pm 0.09$ ;  $+3.7\%$ ), the minute ventilation declined by  $2.4\%$  (VE-C:  $27.9 \pm 4.2$  l/min). Urapidil shifts the myocardial function curve (PAEDP as an index of the left ventricular filling pressure versus CI) to the left and slightly upwards due to the reduction of preload and afterload. The follow-up data (3.3 months later) with oral Urapidil (mean dose 82.5 mg/die, range 60 – 120 mg/die) in addition to the standard treatment regimen (digitalis, diuretics) reveal a persistent improvement of the exercise hemodynamics (C = 100%): FH  $+0.6\%$ ; BPpm  $-5.1\%$ , PA pm  $-14.2\%$ ,  $2p \leq 0.05$ ; PAEDP  $-17.6\%$ ,  $2p \leq 0.05$ ; CI  $+10.5\%$ ; PVR  $-14.1\%$ ,  $2p \leq 0.05$ ; PulmVR  $-20.9\%$ ,  $2p \leq 0.05$ ; SV  $+11.3\%$ ; SWI  $+6.8\%$ .

The antihypertensive properties of urapidil are related to central (alpha-2-adreno-receptors) and peripheral mechanisms (blockade of postsynaptic alpha-1-adrenore-ceptors).