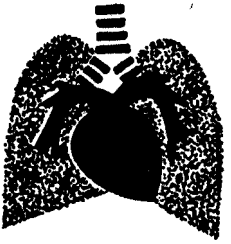
INTERNATIONAL SYMPOSIUM

PULMONARY CIRCULATION III



PRAGUE

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ABSTRACTS

EFFECTS OF OXYFEDRIN AND DIGOXIN ON EXERCISE HEMODYNAMICS IN PATIENTS WITH COLD.

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This study has been performed to assess the effects of added oxyfedrin (8 mg i.v.) in comparison to the influence of digitalis (digoxin 0,4 mg i.v.) on central hemodynamics and ergospirometric parameters. 10 male patients (mean age 58,8 a) were working in a recumbent position on a bicycle ergometer. Their exercise performance (mean load 23,8 W) was severely impaired by COLD (RV: 3,9 l = 56,2% TLC; SRaw: 33,7 cm H2O.sec; flow 50% VC: 0,84 l/sec, 25% VC: 0,29 l/sec). Catheters were placed in the arterial and pulmonary circulation , ergospirometric parameters were assessed by an open air circuit system, hemodynamic parameters were calculated on-line due to direct Fick's principle. After control data have been obtained (C) ergometric stress tests were repeated 30 min. after digoxin and 15 min. after oxyfedrin respectively. The heart rate was not influenced (C: 108,8 $\bar{x}$; D: 104,9 2P=0,05; O: 107,4 b/min), cardiac index improved (C: 4,25; D: 4,19; O: 4,82 l/min/m^2; +13,4%; 2P≤0,10) due to an increase in stroke volume (C: 75,6; D: 76,5; O: 85,7 ml; +13,6%; 2P≤0,05). Besides a small reduction of the mean arterial blood pressure (C: 127,5; D: 119,2 2P≤0,05; O: 124,5 mm Hg) we observed a considerable decline of the mean pulmonary (C: 39,9; D: 36,1; O: 31,3 mm Hg; 2P≤0,01) and enddiastolic pulmonary artery pressure (C: 28,9; D: 25,0; O: 21,1 mm Hg; 2P≤0,01). Minute ventilation volume (C: 19,4 l/min), oxygen uptake (C: 0,69 l/min), tidal volume (C: 0,63 l), functional dead space ventilation ratio (C: 0,41) and ventilation-perfusion ratio (C: 1,59; O: 1,32 n.sig.), arterial blood gas content (pO2, pCO2) and base excess were invariable. From these findings we may conclude that patients with very low steady-state exercise performance due to COLD will benefit from the direct sympathomimetic action of oxyfedrin: cardiac volume output increases and the pressure load on the pulmonary vascular bed decreases considerably.