Pulmonary Circulation

Progress in
Respiration Research

formerly 'Progress in Research in Emphysema and Chronic Bronchitis'

Vol. 5

Edited by
H. Herzog, Basel

S. Karger R • Basel • Munchen • Paris • New York

International Symposium on Pulmonary Circulation, Prague, June 10-13, 1969

Pulmonary Circulation

Edited by
J. Widimsky, Prague; S. Daum, Basel; H. Herzog, Basel

with 282 figures and 58 tables

S. Karger R • Basel • Munchen • Paris • New York

Progress in
Research in Emphysema and Chronic Bronchitis

Vol. 1. Normal and Abnormal Pulmonary Circulation. Fifth Annual Conference on
VIII+452 p., 164 fig., 44 tab., 1963 (Separatum 'Medicina Thoracalis'). Vol. 19, No. 4-6.

Ed. Roger S. Mitchell (Denver, CO). XII+431 p., 198 fig., 59 tab., 1965 (Separatum
'Medicina Thoracalis', Vol. 22, No. 1-3).

Progress in Respiration Research

on Oxygen Pressure Recording, Nijmegen, September 19-20, 1968. Ed. F. Kreuzer,
Table of Contents

Section I. Normal and Pathological Anatomy of the Pulmonary Hypertension

Morphometry of Pulmonary Circulation. E.R. Weibel (Berne) 2
Hypoxic Hypertensive Pulmonary Vascular Disease. D. Heath (Liverpool) 13
A Classification of 'Primary Pulmonary Hypertension', C.A. Wagenvoort and N. Wagenvoort (Amsterdam) 17
Incidence of Primary Pulmonary Hypertension After Intake of Aminorexfumarat (Menocil®), Regulation of Respiration in Primary Pulmonary Hypertension. P.v.Smekal, K.Standfuss and G.Rau (Cologne-Lindenthal) 22
Crotalaria Pulmonary Hypertension. J. M. Kay (Liverpool) 30
Appetite Depressants and Pulmonary Hypertension. F.Kummer (Vienna) 33
Discussion on Section I 36

Section II. Physical Characteristics of the Pulmonary Circulation, Rheology of Blood and Pulmonary Circulation, Flow Patterns in the Pulmonary Circulation

Attempts to Determine Volume, Compliance and Resistance to Flow of Pulmonary Vascular Compartments. J. Piiper (Gottingen) 40
Pressure Volume Relationship in the Pulmonary Circulation. A. Maseri, A. Caldini, S. Permutt, and K. L. Zierler (Pisa) 53
Influence of Rheology of Perfusate on Pressure-flow Curves in Isolated Lung Lobe of the Dog. A. Lockhart and A. M. Benis (Nancy) 61
Pressure Flow Relationships in the Pulmonary Circulation in the Dog. S. R. Reuben, B. Gersh and G. de J. Lee (Oxford) 76
The Effects of Red Blood Cell Concentration on Pulmonary Blood Flow, W. H.
Section III. Effect of Drugs on the Pulmonary Circulation in Normal Men and Patients with Pulmonary Hypertension

The Pharmacology of Some Naturally Occurring Substances in the Human Pulmonary Circulation. P. Harris (London) 100

Effects of Vasodilator Drugs on the Pulmonary Circulation. C. T. Dollery (London) 105

Effects of Drugs on Pulmonary Circulation in Normal Man and Patients with Cardiopulmonary Disease. B. Soderholm (Orebro) 113

The Influence of Bradykinin on the Pulmonary Hypoxic Response in Normal Man. N. Segel, V. Stanek, R. Joshi and S. Singhal (Birmingham) 119

The Treatment of the Pulmonary Vascular Hypertension. D. W. Behrenbeck (Bonn) 127

Discussion on Section III 131

Section IV. Effect of Physiological Gases on the Pulmonary Circulation, Intact Organisms, Isolated Lungs, Species Differences; Distribution of Pulmonary Flow

Blood Gases and the Control of the Circulation Through Collapsed and Hypoventilated Lung. Gwenda R. Barer, P. Howard, Janice R. McCurrie and J. W. Shaw (Sheffield) 136

The Pulmonary Vasoconstrictor Response to Acute Hypoxia. Studies on Mechanism and Site of Action. A. Hauge (Oslo) 145


Regional Pulmonary Vasomotor Activity in Man. M. Arborelius, Jr., B. Lilja and S. E. Lindell (Malmo) 180

Regulation of the Pulmonary Circulation. V. Lopez-Majano (Baltimore, Md.) 188

Analysis of the Inhomogeneity of Pulmonary Blood Flow. H. R. Vogel and G. Thews (Mainz) 203

Distribution of Pulmonary Blood Flow in Patients with Abnormal Pulmonary Pressure and Flow. M. Samanek (Prague) 210

Discussion on Section IV 215

Section V. Effect of Reduction of Pulmonary Vascular Bed
A. Pulmonary Artery Occlusion

Pressure, Flow and Volume Changes of the Lesser Circulation During Pulmonary Artery Occlusion in Healthy Subjects and Patients with Pulmonary Hypertension. J. Widimsky (Prague) 224

B. Pneumonectomy

Pulmonary Haemodynamics in Bronchogenic Cancer Before and After Lung Resection. V. Je2ek (Prague) 237
Pulmonary Hypertension Following Reimplantation of the Lung in Dogs. P. McN. Hill and K. M. Shaw (Dublin) 244
The Effect of Pneumonectomy on the Central Hemodynamics. G. Di Maria (Catania) 253

C. Pulmonary Embolism

Pulmonary Air Embolism: Physiological Aspects. E. Berglund, S. Josephson and C.-O. Ovenfors (Stockholm) 259
Pulmonary Venous Hypertension, Edema, and the Altered Function of the Lungs after Embolization with Autologous Clots. F. R. Chavez, J. O. Harris, E. W. Swenson, G. R. Daicoff and A. H. Anton (Gainesville, Fla.) 264

Table of Contents VII

Clinical Physiology of Acute Pulmonary Embolism. F. D. Gray, Jr. (Philadelphia, Pa.) 277
Gas Exchange and Haemodynamics in Patients with Pulmonary Embolism. J. Bjure (Goteborg) 284
The Use of Lung Scintigraphy in the Study of Pulmonary Embolism. V. Lopez-Majano (Baltimore, Md.) 290
Pulmonary Venous Responses to High Blood Flow. A. L. Hyman (New Orleans, La.) 299
Discussion on Section V 308

Section VI. Pulmonary Blood Volume and its Components: Relationships Between PBV and Total Blood Volume

Pulmonary Blood Volume and its Relationships to Total Blood Volume and Central Hemodynamics in Man. C. Giuntini (Pisa) 318
Differentiating Measurements of Blood Volumes in Isolated Human Lungs. R. Back-mann and W. Hartung (Mfinster) 327
Pulmonary Capillary Blood Volume in Conditions with High Pulmonary Blood Flow: Pneumonectomy and Congenital Cardiac Malformations with Left to Right Shunt. M. Englert (Brussels) 338
Computer Analysis of the Dynamic Scintigraphy of the Lung. J. Prokopec, J. Vacek and J. KalaS (Prague) 346
Discussion on Section VI 350

Section VII. Effect of Exercise and Age on the Pulmonary Circulation

Circulatory Effects of Suggested Leg Exercise and Fear Induced Under Hypnotic State. T. Arvtdsson, H. Astrom, S. Bevegard and B. Jonsson (Stockholm) 365
The Effect of Age on the Pressure-flow Relationship and on the Capacity of the Pulmonary Vascular Bed with Special Reference to the Condition of High Flow. V. Stanek, J. WroiMSKY and J. Hurych (Prague) 375
The Effect of Age on Pulmonary Circulation in Normal Subjects. R. Messin, S. Degre, B. Demaret, P. Vandermoten and H. Denolin (Brussels) 385
The Exercise Test in Patients with Obstructive Pulmonary Hypertension. F. Burkart (Basel) 395
Lung Function in Primary Obstructive Pulmonary Hypertension. H. Herzog and S. Daum (Basel) 400
Discussion on Section VII 406

Section VIII. Collateral Circulation of the Lung

Morphology of Bronchopulmonary Anastomoses, their Occurrence and Importance. J. DobiaS (Prague) 412
Methods for Evaluation of Magnitude of Collateral Lung Circulation. J. Endrys (Hradec Kralove) 421
Functional Manifestations of Bronchopulmonary Collaterals. F. Herles (Prague) 428
The Collateral Circulation of the Lung and Finger Clubbing. A Review. L. Cudkowicz (Halifax) 436
Pulmonary Arterio-venous Pressure Gradient as a Determinant of Increased Venous Admixture. D. Kentera and V. Veukovic (Belgrade) 450
Discussion on Section VIII 455

Subject Index 459