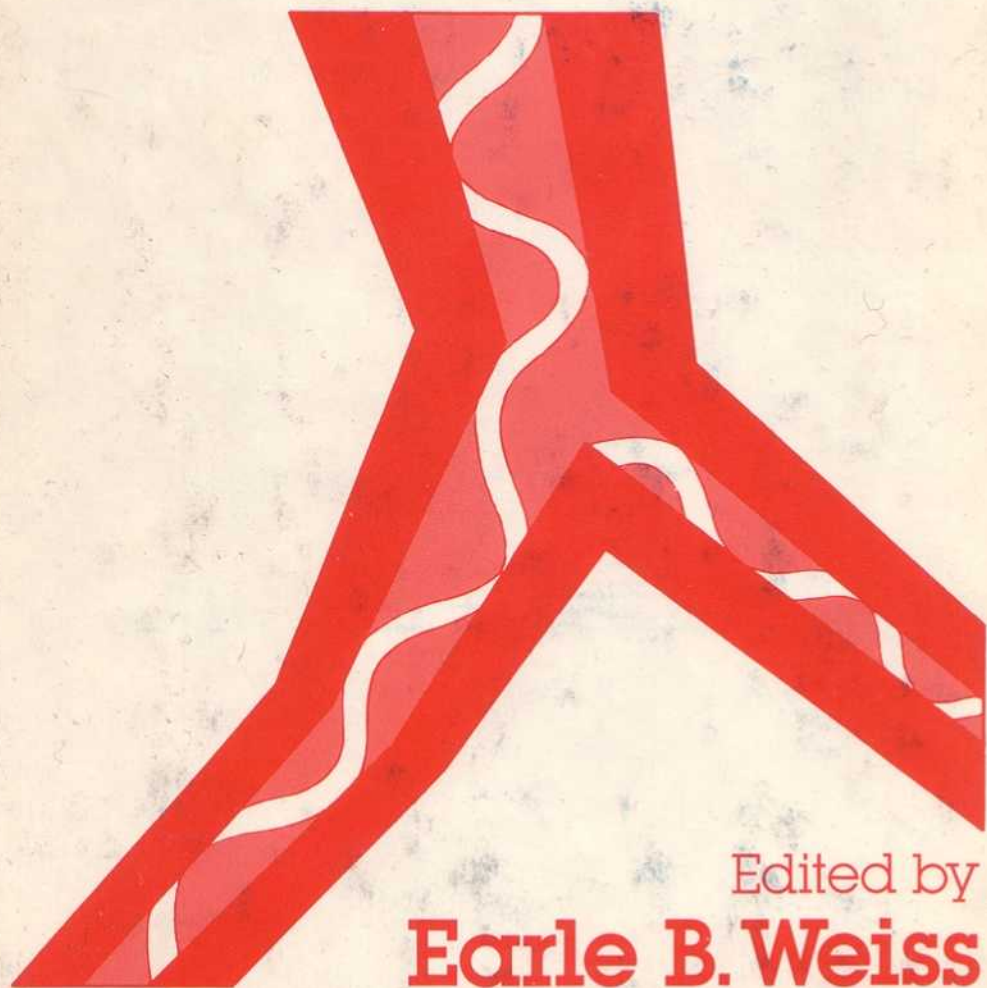


STATUS ASTHMATICUS



Edited by

Earle B. Weiss

University Park Press

Baltimore



Status Asthmaticus

Edited by

Earle B. Weiss, M. D.

Director, Division of Respiratory Diseases

Saint Vincent Hospital

and

Professor of Medicine

University of Massachusetts Medical School

Worcester, Massachusetts

University Park Press

Baltimore



UNIVERSITY PARK PRESS
International Publishers in Science and Medicine
233 East Redwood Street
Baltimore, Maryland 21202

Copyright © 1978 by University Park Press

Typeset by American Graphic Arts Corporation.
Manufactured in the United States of America by The Maple Press Company.

All rights, including that of translation into other languages, reserved.
Photomechanical reproduction (photocopy, microcopy) of this book or
parts thereof without special permission of the publisher is prohibited.

Library of Congress Cataloging in Publication Data

Main entry under title:
Status asthmaticus.

Proceedings of a symposium held in Boston, June 3-4,
1977, sponsored by the Massachusetts Thoracic Society.

Bibliography: p.
Includes index.

1. Asthma—Congresses. I. Weiss, Earle B.
II. Massachusetts Thoracic Society.

RC591.S73 616.2'3 78-1697

ISBN 0-8391-1206-8

Contents

Contributors	vii
Preface	xi

FUNDAMENTALS/PATHOPHYSIOLOGY

1 Status Asthmaticus— Definition, Criteria for Diagnosis, and Clinical Causes	3
<i>Albert E. Heurich, Chin Tang Huang, and Harold A. Lyons</i>	
2 Epidemiology and Mortality Patterns in Asthma	13
<i>Frank E. Speizer</i>	
3 Pathology of Status Asthmaticus	19
<i>William M. Thurlbeck</i>	
4 Chemical Mediators of Immediate Hypersensitivity and Neural Regulatory Mechanisms Their Role and Interactions in Status Asthmaticus	33
<i>Stephen I. Wasserman and David M. Center</i>	
5 Pharmacological Basis for Refractoriness	49
<i>Arend Bouhuys</i>	
6 Mucus as a Contributing Factor	59
<i>Lynne Reid</i>	
Discussion	73
7 Physiological Changes in the Acute Asthmatic Attack	81
<i>Warren R. Summer</i>	
8 Gas Exchange in Asthma	101
<i>Hamayoun Kazemi and David J. Kanarek</i>	
9 Hypothalamus—Pituitary—Adrenal Function in Asthma and Status Asthmaticus and the Entity of Steroid Resistance	115
<i>Stuart M. Brooks</i>	
10 Clinical Implications of Eosinophilia in Status Asthmaticus	131
<i>Albert L. Sheffer and Stephen I. Wasserman</i>	
11 Characteristics of the Risk Patient and Features of the Prodrome State of Status Asthmaticus	141
<i>Anthony S. Rebuck</i>	
12 Staging Therapeutic Schedules to Clinical Severity in Status Asthmaticus	151
<i>Gordon L. Snider</i>	
Discussion	163

CLINICAL AND THERAPEUTIC CONSIDERATIONS

13	Sputum: Observations in Status Asthmaticus and Therapeutic Considerations	173
	<i>Sanford Chodosh</i>	
14	Theophylline Pharmacokinetics and Clinical Application	201
	<i>Ralph P. Miech</i>	
15	Adrenergic Agents in Bronchial Asthma, Emphasizing Undesirable Reactions	215
	<i>Domingo M. Aviado</i>	
16	Role of β_2 Agents in Status Asthmaticus	225
	<i>Joseph J. McPhillips</i>	
17	Corticosteroid Mechanisms and Therapeutic Schedules	235
	<i>John V. Collins and D. Jones</i>	
18	The Role of Antibiotics in Status Asthmaticus	255
	<i>L. Jack Faling</i>	
19	The Role of Sedatives and Implications of Ventilatory Control in Status Asthmaticus	267
	<i>L. Jack Faling</i>	
20	The Role of IPPB in Acute Asthma	279
	<i>Myron Stein and Clara Gelbard</i>	
21	Oxygen and Mechanical Ventilation in Status Asthmaticus	285
	<i>Thomas L. Petty</i>	
22	Bronchoscopy and Lavage in Asthma	293
	<i>Daniel Kovnat</i>	
	Discussion	299
23	Status Asthmaticus During Childhood	305
	<i>Elliot F. Ellis</i>	
24	Status Asthmaticus in Pregnancy	317
	<i>Sheldon Mintz</i>	
25	Prophylaxis of Status Asthmaticus	327
	<i>Sheldon Spector</i>	
26	Corticosteroid Weaning and Maintenance Schedules	341
	<i>M. Henry Williams, Jr.</i>	
27	Psychiatric Aspects of Status Asthmaticus	351
	<i>Peter H. Knapp and Louis Vachon</i>	
28	A Clinician's View of Status Asthmaticus, Including Complications and Mortality in Bronchial Asthma	363
	<i>Gustave A. Laurenzi</i>	
	Discussion	377
	Supplementary References	383
	Index	395

Contributors

DOMINGO M. AVIADO, M.D.
Professor of Pharmacology
University of Pennsylvania School of
Medicine
Philadelphia, Pennsylvania

AREND BOUHUYS, M.D., Ph.D.
Professor of Medicine and
Epidemiology
Director, Lung Research Center
Yale University School of Medicine
New Haven, Connecticut

STUART M. BROOKS, M.D.
Associate Professor and
Chief, Clinical Studies Division
Department of Environmental Health
and Medicine
University of Cincinnati
Cincinnati, Ohio

DAVID M. CENTER, M.D.
Research Fellow in Medicine
Harvard Medical School
Assistant Physician
Peter Bent Brigham Hospital
Boston, Massachusetts

JOHN V. COLLINS, M.D.
Consultant Physician
Brompton Hospital
London, England

SANFORD CHODOSH, M.D.
Associate Professor of Medicine
Boston University School of Medicine
Director, Sputum Laboratory
Boston City Hospital
Boston, Massachusetts

ELLIOT F. ELLIS, M.D.
Professor and Chairman
Department of Pediatrics
State University of New York at
Buffalo
Pediatrician-in-Chief
Children's Hospital at Buffalo
Buffalo, New York

L. JACK FALING, M.D.
Assistant Professor of Medicine
Tufts University School of Medicine
Pulmonary Service
Veterans Administration Hospital
Boston, Massachusetts

CLARA GELBARD, M.D.
Clinical Associate
Institute of Critical Medicine
Los Angeles, California

ALBERT HEURICH, M.D.
Assistant Professor of Medicine
Pulmonary Disease Division
State University of New York
Downstate Medical Center and
Kings County Hospital Center
Brooklyn, New York

CHIN TANG HUANG, M.D.
Assistant Professor of Clinical
Medicine
Pulmonary Disease Division
State University of New York
Downstate Medical Center and
Kings County Hospital Center
Brooklyn, New York

D. JONES, M.D.
Brompton Hospital
London, England S.W.3.

DAVID KANAREK, M.D.
Assistant Professor of Medicine
Harvard Medical School
Assistant in Medicine
Massachusetts General Hospital
Boston, Massachusetts

HOMAYOUN KAZEMI, M.D.
Associate Professor of Medicine
Harvard Medical School
Chief, Pulmonary Unit
Massachusetts General Hospital
Boston, Massachusetts

PETER H. KNAPP, M.D.
Professor and Associate Chairman
Division of Psychiatry
Boston University School of Medicine
Boston, Massachusetts

DANIEL M. KOVNAT, M.D.
Assistant Professor of Medicine
Boston University School of Medicine
Medical Director, Respiratory Care
Service
Brockton Hospital
Brockton, Massachusetts

GUSTAVE A. LAURENZI, M.D.
Clinical Professor of Medicine
Tufts University School of Medicine
Director of Pulmonary Disease
Newton-Wellesley Hospital
Newton Lower Falls, Massachusetts

HAROLD LYONS, M.D.
Director
Pulmonary Disease Division
State University of New York
Downstate Medical Center and
Kings County Hospital Center
Brooklyn, New York

JOSEPH J. McPHILLIPS, Ph.D.
Associate Medical Director
Astra Pharmaceutical Products, Inc.
Framingham, Massachusetts

RALPH P. MIECH, M.D., Ph.D.
Associate Professor of Medical
Sciences
Division of Biological and Medical
Sciences
Brown University
Providence, Rhode Island

SHELDON MINTZ, M.D.
Assistant Professor
Department of Medicine
University of Toronto
Associate Director
Gage Research Institute
Toronto, Ontario
Canada

THOMAS L. PETTY, M.D.
Professor of Medicine
Head, Division of Pulmonary Sciences
University of Colorado
Denver, Colorado

ANTHONY S. REBUCK, M.D.
Associate Professor of Medicine
University of Toronto
Toronto, Ontario
Canada

LYNNE M. REID, M.D.
S. Burt Wolbach Professor of
Pathology
Harvard Medical School
Pathologist-in-Chief
Children's Hospital Medical Center
Boston, Massachusetts

ALBERT L. SHEFFER, M.D.
Associate Clinical Professor
Harvard Medical School
Director, Allergy Clinic
Peter Bent Brigham Hospital
Boston, Massachusetts

GORDON L. SNIDER, M.D.
Professor of Medicine and Head
Pulmonary Section
Boston University School of Medicine
Chief, Pulmonary Disease Section
Veterans Administration Hospital
Boston, Massachusetts

SHELDON SPECTOR, M.D.
Head, Allergy and Clinical
Immunology
National Jewish Hospital and
Research Center
Denver, Colorado

FRANK E. SPEIZER, M.D.
Associate Professor in Medicine
Harvard Medical School
Chief, Division of Clinical
Epidemiology
Channing Laboratory
Boston, Massachusetts

MYRON STEIN, M.D.
Professor of Clinical Medicine
University of California at Los
Angeles
Co-Director, Pulmonary Medicine
David M. Brotman Memorial Hospital
Culver City, California

WARREN R. SUMMER, M.D.
Assistant Professor of Medicine and
Clinical Director
Division of Respiratory Disease
The Johns Hopkins University School
of Medicine
Baltimore, Maryland

WILLIAM M. THURLBECK, M.D.
Professor and Head
Department of Pathology
University of Manitoba
Winnipeg, Manitoba
Canada

LOUIS VACHON, M.D.
Associate Professor of Psychiatry
Boston University School of Medicine
Boston, Massachusetts

STEPHEN I. WASSERMAN, M.D.
Assistant Professor of Medicine
Harvard Medical School
Assistant Physician
Robert Breck and Peter Bent Brigham
Hospitals
Boston, Massachusetts

EARLE B. WEISS, M.D.
Professor of Medicine
University of Massachusetts Medical
School
Director, Department of Respiratory
Diseases
The St. Vincent Hospital
Worcester, Massachusetts

M. HENRY WILLIAMS, M.D.
Professor of Medicine
Albert Einstein College of Medicine
Director, Chest Services
Bronx Municipal Hospital Center
Bronx, New York