Neonatal Group B Streptococcal Infections

Antibiotics and Chemotherapy

Vol. 35

Series Editors
H. Schönfeld, Grenzach
F.E. Hahn, Washington, D.C.

Basel; Munich; Paris; London; New York; New Delhi; Singapore; Tokyo; Sydney

Neonatal Group B Streptococcal Infections

Volume Editors
K.K. Christensen, Lund
P. Christensen, Lund
P. Ferrieri, Minneapolis, Minn.

59 figures and 96 tables, 1985

Basel; Munich; Paris; London; New York; New Delhi; Singapore; Tokyo; Sydney

Antibiotics and Chemotherapy

National Library of Medicine, Cataloging in Publication
Neonatal group B streptococcal infections

The International Symposium on Neonatal Group B Streptococcal Infections was arranged by the Departments of Medical Microbiology and Obstetrics and Gynecology, the University of Lund, Sweden; 1985; -

Acknowledgements.

Bibliography: p.

Includes index.

I. Neonatology - congresses 2. Streptococcal Infections - in infancy; childhood - congresses
I. Christensen, K.K. (Karen Kvist) II. Christensen, P. (Poul) III. Ferrieri, P. (Patncia)
IV. International Symposium on Neonatal Group B Streptococcal Infections
Drug Dosage
The authors and the publisher have exerted every effort to ensure that drug selection and dosage set forth in this text are in accord with current recommendations and practice at the time of publication. However, in view of ongoing research, changes in government regulations, and the constant flow of information relating to drug therapy and drug reactions, the reader is urged to check the package insert for each drug for any change in indications and dosage and for added warnings and precautions. This is particularly important when the recommended agent is a new and/or infrequently employed drug.

All rights reserved.
No part of this publication may be translated into other languages, reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, micro-copying, or by any information storage and retrieval system, without permission in writing from the publisher.

&x00A9; Copyright 1985 by S. Karger AG, P.O. Box, CH-4009 Basel (Switzerland)
Printed in Switzerland by Th&amp;#x00FC;r AG Offsetdruck, Pratteln
ISBN 3-8055-3953-3

Contents

Acknowledgements ........................................ VIII
Foreword .................................................... IX
Abbreviations .............................................. X
The History of GBS
Dillon, He., Jr. (Birmingham, Ala.): GBS: The Childhood and Adolescent Years . . 1

Epidemiology of GBS

Anthony, B.P. (Torrance, Calif.): Epidemiology of GBS in Man ............... 10
Mayon-White, R.T. (Oxford): The Incidence of GBS Disease in Neonates in Different Countries ............................... 17
Jensen, N.E. (Ringsted): Epidemiological Aspects of Human/Animal Interrelationship in GBS ............................... 40

Bacteriology of GBS
Jelíková, J.; Motlová, J. (Prague): The Nomenclature of GBS ........... 49
Henrichsen, J. (Copenhagen): The Bacteriology of GBS ................. 53
Ferri, P. (Minneapolis, Minn.): GBS Enzymes, Hemolysin, Toxins and Other Products ................................................. 57
Lütticken, R. (Köln): The Genetics of GBS .............................. 71
Kim, K.S. (Torrance, Calif.): Antimicrobial Susceptibility of GBS .......... 83

Contents VI

Antigenic Structure of GBS
Kasper, D.L.; Baker, C.J.; Jennings, H.J. (Boston, Mass./Houston, Tex./Ottawa, Ont.):
Cell Structure and Antigenic Composition of GBS .......................... 90
Bevanger, L. (Trondheim): The Ibc Proteins .............................. 101
Christensen, K.K.; Christensen, P. (Lund): The R-Proteins ................ 114
Wagner, M.; Wagner, B. (Jena): Immunoelectron Microscopical Demonstration of the Cell Wall and Capsular Antigens of GBS ............... 119

Immunology of Neonatal GBS Infection
Ayoub, E.M.; Swingle, H. (Gainesville, Fla.): Pathogenic Mechanisms in Neonatal GBS Infection .................................................. 128
Gotoff, S.P.; Boyer, K.M. (Chicago, Ill.): Cellular and Humoral Aspects of Host Defense Mechanisms against GBS ............................ 142
Hill, H.R.; Shigeoka, A.O.; Rote, N.S.; Allred, C.D.; Hemming, V.G. (Salt Lake City, Utah): Methods of Assessment and Importance of Opsonic Activity for GBS 157
Christensen, K.K.; Christensen, P. (Lund): Immunological Characterization of Mothers of Infants with Neonatal GBS Infection: Definition of a Risk Group .... 190

Diagnosis and Treatment
Ferri, P. (Minneapolis, Minn.): GBS Infections in the Newborn Infant: Diagnosis and Treatment ................................................... 211
Gray, B.M.; Dillon, H.C. Jr. (Birmingham, Ala.): GBS Infections in Mothers and Their Infants ...................................................... 225
Fischer, G. W. (Bethesda, Md.): Gammaglobulin as a Measure for Treating Neonatal GBS Infections .......................... 237
Christensen, K.K.; Christensen, P. (Lund); Seger, R.A. (Zurich): Intravenous Administration of Human IgG to Newborn Infants: Changes in Serum Antibody Levels to GBS .................................................. 247

Shigeoka, A.O.; Pincus, S.H.; Rote, N.S. (Salt Lake City, Utah); Pritchard, D.G. (Birmingham, Ala.); Santos, J. I. (Boston, Mass.); Hill, H.R. (Salt Lake City, Utah): Monoclonal Antibody Preparations for Immunotherapy of Experimental GBS Infection .................................................. 254

Contents VII
Prevention of GBS Infection
Boyer, K.M.; Gotoff, S.P. (Chicago, Ill.): Strategies for Chemoprophylaxis of GBS Early-Onset Infections ............................................ 267
Baker, C.J. (Houston, Tex.); Kasper, D.L. (Boston, Mass.): Vaccination as a Measure for Prevention of Neonatal GBS Infection ......................... 281
Christensen, K.K.; Christensen, P. (Lund): Chlorhexidine for Prevention of Neonatal Colonization with GBS ............................................. 296

Appendix
Henrichsen, J. (Copenhagen): Nomenclature of GBS Antigens ................. 303
References .......................................................... 305
Subject Index ...................................................... 345

Acknowledgements
The 1st International Symposium on Neonatal Group B Streptococcal Infections was arranged by the Departments of Medical Microbiology and Obstetrics and Gynecology, the University of Lund, Sweden.
The meeting was economically supported by the Swedish Medical Research Council and Stiftelsen Samariten, Sweden. Also, the following companies have generously contributed with financial support:
Abbott Diagnostics
ACO AB Biodisk
Eli Lilly Sweden AB
Ferring AB
Glaxo AB
Imperial Chemical Industries PLC
KabiVitrum AB
Leo Ltd. Research Foundation
Roche Produkter AB
Sandoz AB
The Organising Committee would like to thank these foundations and companies for their kind support which made the meeting possible.

Foreword

During August 23rd to 25th, 1983, the University of Lund, Sweden, arranged a workshop on 'Neonatal Group B Streptococcal Infections'. The object was to put together the elite in the field, in order to write the first definitive reference work. Each participant was carefully selected to cover her/his specific area. The editors are deeply indebted to the colleagues who all without exceptions accepted to prepare their contribution.

The papers were in all cases presented by the first author. Each contributor was asked to give a personal view on the selected topic. The present book therefore reflects divergent opinions in fields of controversy, all to the benefit of the reader. However, certain chapters have been abbreviated to avoid repeatings.

Karen Kvist Christensen
Poul Christensen
Patricia Ferrieri

Abbreviations
CDC Center for Disease Control, Atlanta, Ga., USA
CFU colony forming units
CH50 complement-mediated hemolysis (50 %)
CHO carbohydrate
CIE counter-current immunoelectrophoresis
cpm counts per minute
CSF cerebrospinal fluid
ELISA enzyme linked immunosorbent assay
GAS group A streptococci
GBS group B streptococci
IF immunofluorescence
IM intramuscularly
IP intraperitoneally
ISG pooled human gammaglobulin
IV intravenously
LD lethal dose
LPA latex particle agglutination
LTA lipoteichoic acid
MBC minimal bactericidal concentration
MIC minimal inhibitory concentration
n.s. not significantly different
PMN polymorphonuclear cells
PROM premature rupture of the membranes
RABA radioactive antigen binding assay
RDS respiratory distress syndrome
RIA radioimmuno assay
SC subcutaneously
SD standard deviation
STD sexually transmitted diseases
TCA trichloro acetic acid