

EUROPEAN RESPIRATORY MONOGRAPH

Monograph 41, November 2008

Noninvasive Ventilation

Second Edition

Edited by

J-F. Muir, N. Ambrosino and A.K. Simonds



EUROPEAN
RESPIRATORY
SOCIETY

Noninvasive Ventilation
Second Edition

European Respiratory Monograph 41
November 2008

Editor in Chief
K. Larsson

This book is one in a series of European Respiratory Monographs. Each individual issue provides a comprehensive overview of one specific clinical area of respiratory health, communicating information about the most advanced techniques and systems needed to investigate it. It provides factual and useful scientific detail, drawing on specific case studies and looking into the diagnosis and management of individual patients. Previously published titles in this series are listed at the back of this book with details of how they can be purchased.

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European Respiratory
Society

Published by European Respiratory Society Journals Ltd ©2008

November 2008

Hardback ISBN: 978-1-904097-61-7

Paperback ISBN: 978-1-904097-62-4

ISSN: 1025-448x

Printed by Latimer Trend & Co. Ltd, Plymouth, UK

Business matters (enquiries, advertisement bookings) should be addressed to: European Respiratory Society Journals Ltd, Publications Office, 442 Glossop Road, Sheffield, S10 2PX, UK.

Tel: 44 114 2672860; Fax: 44 114 2665064; E-mail: Monograph@ersj.org.uk

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The Guest Editors



J-F. Muir



N. Ambrosino



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The Guest Editors

J-F. Muir is a Professor of Pulmonology and Head of both the Respiratory Diseases Dept and Respiratory Intensive Care unit at the Rouen University Hospital, France. He has a special interest in acute and chronic mechanical ventilation and sleep studies.

N. Ambrosino's research activity has been devoted to: chronic obstructive pulmonary disease, respiratory critical care, pulmonary rehabilitation and home respiratory care. He has also contributed to the development of the use of noninvasive mechanical ventilation techniques in acute and chronic respiratory failure with several clinical trials and original experimental studies. He was the former head of the Pulmonary Rehabilitation Working Group of the European Respiratory Society, and he currently sits on the editorial boards of several international journals.

A.K. Simonds is a Consultant in Respiratory Medicine at Royal Brompton Hospital, London. She runs the Home Ventilation service for adults and children and has a long term clinical and research interest in acute and chronic: noninvasive ventilation, new ventilatory modes, neuromuscular disorders, sleep disordered breathing, endstage lung disease, palliative care and ethics.

Preface

The view on treatment of patients with severe respiratory disorders in general, and of patients with severe chronic obstructive pulmonary disease in particular, has changed during the past decades. The former, often nihilistic, approach has changed into an attitude towards more active engagement in, and treatment of, severely ill patients. In this context, noninvasive ventilation (NIV) has been brought into focus as a valuable alternative treatment, both in acute respiratory failure and chronic respiratory diseases. The growing interest in NIV has been reflected in the *European Respiratory Monograph (ERM)* through the years and the present issue on NIV is a comprehensive review of the field. It updates areas that were covered in the previous 2001 *ERM* edition and adds a number of new aspects on how NIV may be an option in the treatment of patients with primary respiratory and nonrespiratory disorders. In the current issue there are new chapters on treatment of acute and chronic respiratory failure in obese patients. Acute respiratory failure in immunocompromised patients has been given its own chapter and there are specific chapters on the use of NIV in pre-hospital patients and in palliative care. Furthermore, treatment of cardiogenic pulmonary oedema with NIV has a devoted chapter.

The present updated and extended *ERM* on NIV, written and edited by the most appreciated experts in the field, is a must for every clinician who makes contact with patients who suffer from acute or chronic respiratory failure, in whom NIV may be considered. This issue will certainly constitute a highly appreciated source of information and knowledge, both for clinicians and scientists.

K. Larsson
Editor in Chief

INTRODUCTION

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In August 2001, the first edition of a *European Respiratory Monograph (ERM)* devoted to noninvasive mechanical ventilation (NIV) was published [1]. Now is a good time for a second edition, in order to take into account and consolidate views on the numerous developments that have occurred on a variety fronts.

NIV is not a recent concept, having been developed in the 19th century. Subsequent milestones date from the 1950s, with the iron lung in the polio era; the 1960s, with the first attempts at mask ventilation; the 1970s, when mouth ventilation was used increasingly; and the 1980s, when nasal interfaces improved and pressure support ventilation emerged. The 1990s and the first decade of the 21st century have highlighted the importance of pressure support ventilation and of sleep investigation in respiratory medicine, and have demonstrated the changing profile of the underlying causes of chronic and acute respiratory failure, the disease of this century, in particular the growing burden of morbid obesity.

The current *ERM* has been thoroughly renewed and rewritten. We hope that it will afford medical teams daily confronted with acute and chronic respiratory failure a substantial overview of the new aspects of NIV, including pathophysiological indications, technology and monitoring. It is essential that these developments are understood if, over time, we want to improve survival and also optimise ventilator–patient interaction and health-related quality of life.

We would like to warmly thank all the contributors for their enthusiasm and hard work and, in addition, acknowledge K. Larsson (Editor in Chief) and the European Respiratory Society Publications Dept for their excellent technical help.

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