

Optimising Outcome with Respiratory Distress Syndrome for Antenatal Steroids

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Introduction

Respiratory distress syndrome remains a significant problem for preterm babies, although management has evolved gradually over the years resulting in improved survival for the smallest infants but with unacceptable rates of broncho-pulmonary dysplasia at least in part due to reduced use of postnatal steroids [1]. Since 2006, a panel of neonatologists from many European countries have met 3-yearly to review the most recent literature and develop consensus recommendations for optimal management of preterm babies with or at risk of Respiratory distress syndrome in order to achieve the best outcomes for neonates in Europe [2]. The European Consensus Guidelines for the Management of Respiratory distress syndrome were first published in 2007 and have been updated in 2010, 2013 and 2016 and are endorsed by the European Society for Paediatric Research. The Guidelines have been translated into several languages including Chinese, and although primarily intended for use in Europe, they contain recommendations that potentially could be used anywhere provided clinicians have access to all the resources and experience needed to provide modern neonatal intensive care. Although primarily a disorder of surfactant deficiency resulting in pulmonary insufficiency from soon after birth, the classical clinical description of Respiratory distress syndrome has changed as treatments have evolved over the years [3]. Radiographic appearances of ground glass with air bronchograms are rarely seen today due to early surfactant therapy and early continuous positive airway pressure [4]. Definitions based on blood gas analyses are also increasingly redundant as clinicians have moved towards a more pragmatic approach of giving surfactant therapy based on clinical assessment of work of breathing and inspired oxygen requirement very early in the clinical course [5]. Knowing how many babies have genuine Respiratory distress syndrome is therefore difficult. Of the 8,156 babies from Europe for whom data were submitted to the Vermont Oxford Network during 2017, Respiratory distress syndrome was coded for about 80% of babies born at 28 weeks' gestation increasing to 90% at 24 weeks' gestation. Surfactant was given to 55% of very low birth weight infants, 27% in the delivery room and 29% beyond 2 h of age, suggesting that prophylactic surfactant is still being used [6]. Chronic lung disease was coded for 18% of VLBW infants in Europe. The aim of management of Respiratory distress syndrome is to provide interventions to maximise survival whilst minimising potential adverse effects including broncho-pulmonary dysplasia [7]. Many strategies and therapies for prevention and treatment of Respiratory distress syndrome are being tested in clinical trials, and many new studies have been incorporated into updated systematic reviews. These Guidelines update the previous four guidelines after critical examination of the most recent evidence available in late 2018[8]. We have again used a format of summarising management strategies followed by evidence-based recommendations according to the GRADE system to reflect the authors' views on the strength of evidence supporting each of the recommendations [9]. Since the 2010 Guidelines, we have included a brief section on aspects of Respiratory distress syndrome management that arise infrequently. Genetic mutations affecting surfactant systems such as congenital SP-B and ABCA3 deficiency are usually fatal and

beyond the scope of this guideline. Surfactant therapy may also be useful in situations where secondary surfactant inactivation occurs such as ventilated babies with severe pneumonia, pulmonary haemorrhage or meconium aspiration syndrome.

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Conflict of Interest

None

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