Biology of the Neonate

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Preface

2005 marks the 25th anniversary of the first publication demonstrating the clinical efficacy of surfactant [1] and the 20th Anniversary of the first International Workshop on Surfactant Replacement which was held in Amsterdam in 1986. The invited lectures and abstracts from the annual Workshop held in Belfast from 2nd to 5th June 2005 are published in this issue of *Biology of the Neonate*. The 8th Nils W. Svenningsen Memorial Lecture was given by Jeffrey Whitsett from the Division of Pulmonary Biology at Cincinnati Children's Hospital Medical Center. In his lecture, Dr. Whitsett reviewed recent advances in the genetic control of surfactant synthesis and highlighted newly identified mutations affecting the surfactant proteins. Study of these cases has improved our knowledge of the control of surfactant metabolism. Surfactant metabolism was also the topic of Luc Zimmerman's lecture in which he reviewed the many studies on neonates using stable isotopes. The importance of surfactant protein-B was highlighted by both authors. The surfactant proteins are needed to enable surfactant preparations to work rapidly and efficiently and there have been attempts to replace them with peptide analogues in new synthetic surfactants. The basic research underlying the development of these new synthetic surfactants was reviewed by Tore Curstedt, and Roger Soll discussed the recent clinical trials with these preparations.

Other invited contributions relating directly to surfactant included Vinod Bhutani's review of changes in the pulmonary mechanics of preterm infants following surfactant administration. When surfactant is used as rescue treatment rather than prophylaxis, it is necessary to monitor the response to treatment so that appropriate ventilator settings can be adopted. The aim today is to use the least harmful ventilator settings and if possible nasal continuous positive airway pressure. Prophylactic treatment with surfactant for the most immature infants also facilitates early extubation to continuous positive airway pressure.

As this was an anniversary meeting celebrating the evolution of surfactant research over two decades, the Workshop heard two talks on the history of surfactant therapy, Michael Obladen dealing with the period up to 1980 and Henry Halliday the period thereafter. There were two lectures on topics which were not directly related to surfactant therapy but were nevertheless of great importance to neonatologists. Richard Martin reviewed the subject of the control of breathing and neonatal apnea, showing that our present treatment for the latter could be improved. Marcello Orzalesi discussed the very important issue of ethical problems associated with the delivery of neonatal care. End of life decisions need to be taken after full discussion with the entire clinical team and of course the parents.

The Workshop also contained some excellent oral and poster presentations on subjects ranging from assisted ventilation after surfactant treatment to genetic variants causing respiratory distress. New synthetic surfactant preparations were also discussed and there were 4 free papers on prenatal and postnatal corticosteroids in animal studies and clinical trials.

Although the recent era of surfactant research is now a quarter of a century old, it seems that there is still much to learn to perfect this treatment and extend its indications beyond that of neonatal respiratory distress syndrome. No doubt future Workshops will deal with these developments.

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Reference

1 Fujiwara T, Chida S, Watabe YJ, Maeta H, Morita T, Abe T: Artificial surfactant therapy in hyaline membrane disease. Lancet 1980;i:55–59.

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