Summary.

I.R.D.S. of the preterm infant or surfactant deficiency disease remains a significant cause of morbidity and mortality despite improvements in neonatal care. Surfactant deficiency has been identified as the cause of IRDS (HMD). Surfactant replacement therapy for premature infants with IRDS is one of the major advances in neonatal perinatal medicine since it reduces the severity of RDS.

α_1- AT is the most important inhibitor of proteases in human serum and in lower respiratory tract. Cord blood α_1- AT level have been reported to be lower in newborns with IRDS than in " normal " preterm babies of comparable gestation .

This study aimed at evaluation of the various means of diagnosis and management of IRDS .

The studied group (n = 80) comprised 52 males and 28 females suffering from IRDS and born between 25 and 36 weeks' gestation . They were selected from N.I.C.U. of king Fahad hospital at Al-Baha in saudia arabia , during the period from november 1992 to december 1993 .

The control group (n = 28) comprised 12 preterm neonates (from 32 to 35.5 weeks' gestation) and 16 full-term neonates selected from the same hospital during the same period of the study .

All the cases were evaluated through a complete history taking ; neonatal physical examination ; and lab investigations including blood grouping (ABO & RH) , C.B.C. , serial CXR films and follow up of serum level of α_1- AT in cord blood and at 72 , 96 hrs. of age . All kinds of management of these cases were studied with special inclination on the use of a bovine lung surfactant which was " Survanta " (beractant intratracheal suspension) as a replacement therapy . The study of each case continued during the period of admission in the N.I.C.U. till either cured and discharged or expired .

Results were statistically analysed and can be summarized in two main categories :-

I) Serum level of α_1- AT ;

* Cord blood α_1- AT was very highly significantly lower in cases of IRDS than in preterm controls of comparable gestation .

* No significant difference was found between cord blood α_1 – AT in preterm controls and full-term controls.

* With improvement of the cases of IRDS , serum level of α_1 - AT returned to normal range during the first few days of life .
* Cord blood α_1 - AT is not of prognostic value .
* Cord blood α_1 - AT increased significantly in cases of IRDS delivered by C.S. and in cases with positive intrapartum factors .
* There was a weak association close to being significant between cord blood α_1 - AT and the severity of I.R.D.S.
* There was no association between cord blood α_1 - AT and gestational age of cases of IRDS .
* Serum level of α_1 - AT in cases of IRDS treated with surfactant returned to normal range in a more stable pattern than in cases treated without .

II) Surfactant replacement therapy :

* Cases of IRDS treated with surfactant improved significantly better than cases treated without .
* Cases of IRDS received multiple doses of surfactant improved significantly better than cases received a single dose .
* Surfactant replacement therapy was very safe and did not affect the serum electrolytes of the cases of IRDS .
* Surfactant replacement therapy is of conclusive importance in improving the morbidity and mortality rates of IRDS inspite of the controversies about the apparent increase in incidence of some complications of IRDS in cases received the surfactant replacement therapy as I.C.H. , pulmonary hemorrhage and pulmonary air leaks which proved to be of multi-factorial etiologies .