Objective: The aim of this study was to evaluate the maternal and cord lipid profiles in preterm infants with respiratory distress syndrome (RDS) compared to a control group without RDS. Design: this study was performed as a prospective observational study. Methods and Subject: The study groups consisted of 50 preterm infants with gestational ages ranging from 26 to 36 weeks, and birth weights ranging from 800 to 2400 g. of these infants, 30 developed RDS and 20 infants served as controls. Stepwise linear regression analyses were performed to determine independent contribution of each lipid parameter of the infants to their characteristics and mothers' variables. Results: Total cholesterol, high-density and low-density lipoproteins (LDL) cholesterol levels were lower in infants with RDS and in their mothers than in controls, and maternal lipid profile had positive correlation with those of their infants (P<0.05). Pregravid body mass index (BMI) correlated significantly with triglyceride levels of the infants, and weight gain during pregnancy was related to LDL cholesterol levels of the infants (P<0.05). Conclusion: RDS is accompanied with lipid alteration in infants and their mothers. Pregravid BMI and weight gain during pregnancy might have a prognostic significance in the prediction of respiratory distress in early neonatal period.