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## Assesment the effect of corticosteroid therapy on alveolar surfactant development in risk newborn children by novel biophysical methods

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The relative percentage of risk newborn children in Bulgaria increases progressively and in 2015 reaches 11.4%. Neonatal respiratory distress syndrome (NRDS) is a leading cause for up to 30 % of prematurely newborns mortality in our country. The aim of the present study was to apply novel methods for early, fast and noninvasive diagnostics of lung maturity in risk newborns, which would contribute for the choice of correct strategy for lifesaving surfactant therapy. For this purpose by pendant drop method by axisymmetric drop shape analysis (ADSA) and Brewster angle microscopy (BAM) gastric aspirates (GA) from risk newborn children were studied. GA were taken from prematurely born with primary surfactant deficiency, infants born after in vitro fertilization, after corticosteroid therapy of the pregnant female, and control group of healthy full term infants. Our analyses showed higher values of minimum surface tension of the GA taken from NRDS children, as compared to the control group, showing immature alveolar surfactant. This parameter was improved after corticosteroid therapy. In addition, BAM images confirmed the results from ADSA: The monolayers of GA from NRDS children were loose and thin in contrast to those from the control group. After corticosteroid therapy, the monolayers were with better characteristics. Our data proved that the corticosteroid therapy applied 24 hours before delivery resulted in enhanced development and secretion of alveolar surfactant in preterm babies.

### Biography

Vishnya Stoyanova has completed her PhD from Faculty of Biology, Sofia University. She is a Chief Assistent Professor in Biochemistry and Faculty in Medicine, Sofia University. She has published 15 papers in reputed journals.

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