STRONG CHILDREN'S RESEARCH CENTER

Summer 2013 Research Scholar

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ABSTRACT

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Background: Exposure to cigarette smoke is a major cause of chronic oxidative stress in humans[1]. The goal of this study is to consider the impact of maternal cigarette smoking during pregnancy and oxidative stress in preterm infants, which may in turn increase their postnatal respiratory morbidity while in the Neonatal Intensive Care Unit.

Objective: To test the hypothesis that increased tobacco smoke exposure *in utero* due to maternal smoking is associated with higher levels of oxidative stress in the infant.

Methods Urine samples from 40 premature infants and saliva samples from their mothers were used in enzyme-linked immunosorbent assays (ELISA) to quantitate 8oxoG and cotinine respectively.

Results: Statistical analyses indicate no significant correlation between cotinine concentration and 8oxoG levels. Even when comparing the 8oxoG values between maternal smoking and control groups, no statistical significance is observed.

Conclusion: The results of this study indicate that maternal smoking and cotinine values do not significantly affect oxidative stress in the premature infant. It may be that the effects of maternal smoking during pregnancy on oxidative stress and respiratory morbidity are obscured by other factors affecting lung function in neonates. A future study may consider repeating the experiment, this time with a population of full-term infants.