

## CHAPTER 39

### PHYSIOLOGY

#### Doctoral Theses

287. UPADHYAY (Sujata)  
**Role of Oxidative Stress in the Induction of Bronchial Hyperresponsiveness and its modulation by Dietary Antioxidant Vitamins C And E in Guinea Pigs**  
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#### *Abstract*

Reactive oxygen species and the consequent oxidative stress do seem to play a definite role in the induction airway hyperresponsiveness to bronchoprovocative agents associated with asthma in guinea pigs. Reactive oxygen species cause oxidant-antioxidant imbalance, alter the activities of ion transport enzymes and enhance airway inflammation. Host defense against diseases depends to a great extent on diet and dietary vitamins are important factors which modulate defense mechanisms. Vitamins E and C may have a possible role in the reduction of oxidative stress in the guinea pig model of asthma and may be useful as adjunct therapeutic agents along with standard therapy in asthma. Thus it is proposed that in addition to conventional therapy, strategies aimed at increasing airway intracellular antioxidant defenses may lead to more effective treatment for asthma.

#### *Contents*

1. Introduction 2. Review of Literature 3. Aims and Objectives 4. Materials and Methods 5. Results 6. Discussion 7. Summary and Conclusions. Bibliography and Appendixes.