INTRODUCTION
&
AIM OF THE WORK

CHAPTER I

INTRODUCTION AND AIM OF THE WORK

Magnesium is the fourth most abundant metal found in the body. It plays a crucial role in numerous biological processes. Magnesium is a cofactor of numerous enzymes and is coupled with cellular use of phosphate as an activator and energy source, *(Mathew and Altura, 1992).*

The magnesium concentration in plasma is about 0.85 mmol/L (range (0.65 - 1.05 mmol/L) and in erythrocyte is about 2.5 mmol/L (range 1.85 - 2.27 mmol/L), *(Grindler, et al., 1971).*

The magnesium ion has been reported to have an inhibitory action on smooth muscle contraction, *(Altura, et al., 1981),* on histamine release from mast cells, on acetylcholine release from cholinergic nerve terminals and it has a sedative action, *(Britton, et al, 1994).*

Magnesium has been used successfully in treatment of bronchial asthma, *(Rolla et al., 1988).* It has been demonstrated

a beneficial effect with intravenous magnesium in patients with mild, moderate and severe asthma who show little improvement with B - agonist. The role of magnesium is still controversial, *(Knutsen et al., 1994)*.

Hypomagnesemia is not uncommon. The effect of hypomagnesemia on respiratory system in human has not been carefully studied. Some investigators suggested low magnesium level in plasma, *(Knutsen et al., 1994)* or RBCs, *(Landon and Young, 1993)* in some asthmatic patients, while others show normal magnesium level in plasma, *(Falkner, et al., 1992)* or RBCs in groups of asthmatic subjects, *(Falkner, et al., 1992)*.

Also some studies suggested a relation between plasma magnesium level from one side and total plasma protein especially albumin on other side, *(Rude et al., 1988)*.

The aim of this work was to study the level of magnesium in both plasma and red blood cells in our Egyptian asthmatic children both during acute asthma exacerbation and in between attacks to compare these levels with those in normal children. And finally to discuss the role of magnesium in bronchial asthma.