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**CHANGES IN ATRIAL NATRIURETIC  
PEPTIDE WITH HEMODYNAMIC  
ABNORMALITIES IN RHEUMATIC  
VALVULAR DISEASES**



**Thesis**  
**SUBMITTED IN PARTIAL FULFILMENT**  
**OF MASTER DEGREE IN PEDIATRICS**

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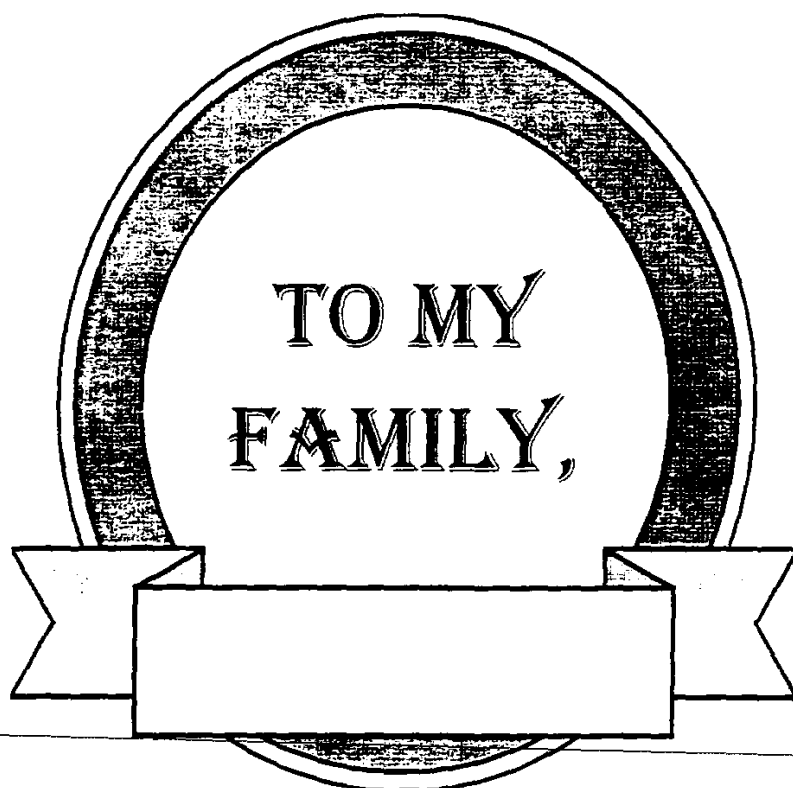
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# INTRODUCTION

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## INTRODUCTION

Rheumatic fever is an inflammatory disease of the heart, joints nervous system, subcutaneous tissues and other systems. It develops after nasopharyngeal infection by one of group A beta hemolytic streptococci (Lenon, 1992).

Rheumatic fever is still a leading cause of acquired heart disease and mortality in young age in the developing countries although a dramatic decline in their incidence had occurred in the western world (Eissa et al., 1985). In Egypt, rheumatic heart disease was condemned to be the first cause of death among school children (Kassem et al., 1982). Prevalence rate was reported in a study done by Kassem et al., 1995 to be 18.7/1000 school children.

Valvular deformity occurs most commonly in the mitral valve followed by the aortic valve, and least in the tricuspid valve (Stollerman, 1992).

Recent findings have demonstrated that the heart is not only a pumping organ but also an endocrine organ. In 1981, De-Bold et al., reported that extracts of atrial tissue produce natriuresis and diuresis when injected intravenously into rats. This discovery stimulated an intensive effort to identify and characterize the responsible factor. Atrial natriuretic peptide (ANP) was isolated from rat and human atria and implicated in the regulation of water, electrolytes, blood volume and blood pressure (Tsutamoto et al., 1989).

Atrial natriuretic peptide had potent diuretic, natriuretic and vasodilatory properties. It also inhibits the action of endogenous vasoconstrictors and reduces aldosterone synthesis (Ogawa et al., 1986).

Studies suggest that the peptide is released from the atria in response to increased atrial pressure in children with heart diseases which are known to be associated with high atrial pressure and atrial stretching (Lang et al., 1985 & Kikuchi et al., 1987).

Accordingly, plasma concentrations of ANP are an objective indicator of the severity of hemodynamic compromise in patients with cardiac impairment (Richards et al., 1986).

# **AIM OF THE WORK**

