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بالرسالة صفحات
لم ترد بالأصل

Study of Immuno-Modulation by Corticosteroids in Patients with Latent Schistosomal Pulmonary Hypertension

THESIS

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By

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List of Abbreviations

A	:	Peak atrial velocity
AT	:	Acceleration time
B.C.	:	Before christ
B-cell	:	B lymphocyte cell
C3	:	Complement-3
CICs	:	circulating immune complexes
Con A	:	Concanavalin A
DT	:	Deceleration time
DTH	:	Delayed type hypersensitivity
E	:	Peak early diastolic velocity
EF	:	Ejection fraction
ET	:	Ejection time
FS	:	Fractional shortening
Ig	:	Immunoglobulin
IL-10	:	Interleukin-10
INF-γ	:	Interferon gamma
LVEDD	:	Left ventricular end diastolic dimension
LVESD	:	Left ventricular end systolic dimension
MPAP	:	Mean pulmonary artery pressure
PA	:	Pulmonary artery
PBMCs	:	Peripheral blood monocyte cells
PV	:	Peak velocity
PVR	:	Peipheral vascular resistance
rpm	:	Round per minute
RVEDD	:	Right ventricular dimension in end diastole
Sch PHT	:	Schistosomal pulmonary hypertension
SCP	:	Schistosomal cor pulmonale
SEA	:	Soluble egg antigen
Th	:	T- helper
VWF	:	von Willebrand factor

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INTRODUCTION

INTRODUCTION

Schistosomiasis is a disease which has been known since the time of ancient Egyptians.[1] "Bloody Urine", one of the characteristic clinical features of the urinary form of the disease was graphically illustrated in papyrus in 1500 B. C.[1]

The causative agent was discovered by Theodor Bilharz, a German physician who worked in Egypt.[2]

Human *schistosomiasis* is caused in an overwhelming majority of cases, by one of three species of parasite helminth: *Schistosoma mansoni*, *S. haematobium* and *S. Japonicum*.[3,4]

It is a major public health problem in Egypt. *Schistosomiasis* is seen in three clinical forms:[5]

1- Acute *schistosomiasis* which occurs 5-7 weeks after heavy primary infestation i.e. during the period of first excretion of eggs.
2- Chronic form is present most commonly with predominantly intestinal involvement with or without hepatomegally and few or no symptoms.
3- Hepatosplenic disease characterized by symmer's fibrosis of the liver and portal hypertension.[6]

One of the most serious complications of schistosomiasis is pulmonary hypertension.[7]

Pulmonary hypertension

Pulmonary hypertension is defined as pulmonary artery systolic pressure and mean pulmonary artery pressure greater than 30 and 20 mmHg respectively with increased pulmonary vascular resistance.[8]

It results from reduction in the caliber of the pulmonary vessels and/or increase in pulmonary blood flow.[9]

It is a haemodynamic consequence of vascular changes within the pre-capillary (arterial) or post capillary (venous) pulmonary circulation.[10] These changes may be idiopathic as in primary pulmonary hypertension or pulmonary veno-occlusive disease, but more commonly they represent a secondary response to alterations in pulmonary blood flow.[11] Both pre-capillary and post capillary pulmonary hypertension are regarded as secondary when a cause is established.[11]

Causes of pre-capillary pulmonary hypertension (changes limited to arterial side of the pulmonary circulation), include, long standing left-to-right shunt, chronic thromboembolic disease, widespread pulmonary embolism arising from intravascular malignant cells, parasites and other foreign materials, chronic alveolar hypoxia and chronic interstitial lung disease.[12,13,14] Post capillary pulmonary hypertension (findings located within pulmonary venous circulation, between the capillary bed and the left atrium) may develop secondary to focal venous constriction or to compromised pulmonary venous drainage due to; left atrial mass, mitral

stenosis or left ventricular failure and rarely congenital venous stenosis or anomalous pulmonary venous connections.[12,14]

Schistosomal pulmonary hypertension may progress to cause *schistosomal cor pulmonale* (SCP),[7] which is the important cause of vascular *cor pulmonale* in Egypt.[14]

According to World Health Organization, cor pulmonale is defined as a combination of hypertrophy and dilation of the right ventricle secondary to pulmonary hypertension caused by disease of the pulmonary parenchyma and/or pulmonary vascular system between the origin of the main pulmonary artery and the entry of the pulmonary veins into the left atrium.[15]

Schistosomal cor pulmonale (SCP) is a chronic vascular *cor pulmonale* due to widespread affection of the small pulmonary arterioles leading to their narrowing or complete obliteration, with little or no involvement of the lung parenchyma and no evidence of ventillatory or alveolorespiratory insufficiency.[16] The condition is one of the obliterative pulmonary hypertension and was first described by Azmy and Effat[17] under the title of pulmonary arteriosclerosis of bilharzial nature.

Incidence of schistosomal cor pulmonale

Cardiopulmonary schistosomiasis is usually attributed to *Schistosoma mansoni* infestation, which is endemic in Egypt.[18,19] *Schistosoma haematobium* and *S. Japonicum* are less commonly

implicated.[19] In 1938, Shaw and Ghareeb[20] studied 282 autopsies of bilharzial infected patients, they found pulmonary lesions in 33% and of those 6.3% had *schistosomal cor pulmonale*. In 1953, Girgis and Baragan[21] reviewed 1000 cardiac patients and found that 4.3% had pulmonary heart disease and *schistosomal cor pulmonale* accounted for 46.5% of these patients, i.e. 2% of all studied patients.

In 1963, El Mofty[22] reported that 0.8-1.0% of all patients with intestinal and/or urinary bilharziasis showed the clinical picture of *cor pulmonale*.

Lambertucci *et al.*,[23] (1996) found that 11.7% of the individuals with schistosomiasis examined by Doppler echocardiography had pulmonary hypertension.[22]

Pathogenesis of schistosomal cor pulmonale

A prolonged period of at least 5 years of continuous ova secretion is usually required for the development of cardio-pulmonary disease.[19,24]

Portal hypertension with periportal fibrosis appears to be a prequisite condition for its development.[7,19] Various mechanisms were suggested for the pathogenesis of the disease.[25]

Ova deposition theory

The traditional theory is the ova embolization with release of miracidial toxins leading to necrotizing arteriolitis with consequent obliterative arteriolitis after healing and angiomatoid formation.[20,26]