Study of Presence of Active Intestinal Schistosomiasis in Patients Undergoing Colonoscopy Due to Different Complaints

Thesis
Submitted for Partial Fulfillment of the Master Degree in Tropical Medicine

By

Ali Abd El-Rahim Ali
(M.B.B.CH. Cairo University)

Supervisors

Prof. Dr. Sameh Saad Labib, MD

Professor of Tropical Medicine
Faculty of Medicine
Cairo University

Prof. Dr. Moataz Serry Seyam , MD

Professor of Tropical Medicine
Theodor Bilharz Research Institute

Dr. Mohamed Salah Abdel Bary , MD

Assistant Professor of Tropical Medicine
Faculty of Medicine
Cairo University

FACULTY OF MEDICINE
CAIRO UNIVERSITY
2010

سورة البقرة : الآية 32

Contents

ACKNOWLEDGMENT

**"First and Foremost, Thanks are Due to GOD,
The Beneficent and Merciful of All"**

It was an honor to work under the supervision of eminent professors, who lent me their whole hearted support and immense facilities as is their usual with their juniors. To them, I owe more than I can record.

I would like to express my deepest gratitude and sincere thanks to ***Prof. Dr. Sameh Labib,*** *Professor of Tropical Medicine, Faculty of Medicine, Cairo University, for his instructive supervision, continuous guidance, valuable instructions and offering all facilities.*

He gave me his valuable advices and support that cannot be expressed in words. His fatherhood attitude and encouragement were so supportive for the completion of this work.

Whatever I say or write, I will never be able to express my deep feelings and profound gratitude to ***Prof. Dr. Moataz Seyam*** *Professor of Tropical Medicine, Theodor Bilharz Research Institute for his strict supervision, planning the design and revision of the work.*

Many thanks to ***Dr. Mohamed Salah,*** *assistant Professor of Tropical Medicine, Faculty of Medicine, Cairo University, for his continuous help, valuable suggestions, guidance and encouragement during the progress of this work. I would like to thank him for his supervision and revision of the work.*

My thanks and appreciation to ***Prof. Dr. Hanan Sayed,*** *Professor of community medicine, Theodor Bilharz Research Institute****,*** *for her valuable suggestions and her unlimited support.*

My thanks and appreciation to ***Prof. Dr. Mona Nosseir,*** *Professor of pathology, Theodor Bilharz Research Institute****,*** *for her valuable suggestions and her unlimited support.*

*Many thanks to****.*** ***Dr. Samia William,*** *assistant Professor of parasitology, Theodor Bilharz Research Institute****,*** *for offering all facilities for the laboratory work, standardization and interpretation of the results.*

I am extremely grateful to ***Dr. Tarek Mahmoud Diab****, Lecturer of Parasitology, Theodor Bilharz Research Institute, for his unlimited help in the statistical analysis of the data; he gave me much of his time advice and effort throughout this work.*

Many thanks to ***Prof. Dr. Mahassen Abd El-Rahman ,*** *Professor and Head of Tropical Medicine Department, Faculty of Medicine, Cairo University, and the whole staff members and workers in this department for their support and advice.*

Many thanks to ***Prof. Dr. Ahmad Sadek,*** *Professor and Head of Tropical Medicine Department, Theodor Bilharz Research Institute, and the whole staff members and workers in this department for their support and advice.*

Finally, No words can express my deepest appreciation and gratitude to my family, my wife and my two sons for their never ending support and care.

Ali Abd El -Rahim

2010

Abstract

Schistosomiasis is a highly prevalent parasitic infection worldwide and it is estimated that more than 200 million people are currently infected and more than 779 million people are at high risk of infection, 85% of those live in Africa. Schistosomiasis is endemic in 76 countries, with 46 of those countries located in Africa. In the last five years, schistosomiasis became one of the neglected tropical diseases

The aim of this study was to investigate the last record of ministry of health that schistosomiasis both mansoni and hematobium were decreased to less than **1%** of population and to see if schistosomiasis should be considered one of the neglected tropical diseases or it should be put in our mind and give it more efforts for control and eradication.

This study was conducted on **80** patients attending for colonoscopic examination due to different complaints.

We performed for every case colonoscopy, rectal snip and its examination by transparency technique and pathology, Kato Katz technique, nucleopore filtration technique and abdominal ultrasonography together with history taking and clinical examination.

We concluded that Schistosomiasis should not be considered one of the neglected tropical diseases in our country, transparency technique was the gold standard method for diagnosing schistosomal infection both mansoni and hematobium and the percentage of schistosomiasis by this technique was 21.25% followed by pathology of rectal snip followed by parasitological methods Kato Katz technique and nucleopore filtration technique, the most accurate site for rectal snip is rectal valves, and Schistosomiasis can be a cause of chronic abdominal pain.

Key words:

- Schistosomiasis.
- Rectal snip.
- Colonoscopy.

List of abbreviations

APCs: Antigen presenting cells.

CD: cercarial dermatitis.

CSA: circulating schistosomal antigen.

ELISA: enzyme linked immunosorbent assay.

HAMA: hematobium associated microsomal antigen.

HBV: hepatitis B virus

HCV: hepatitis C virus.

HS: highly significant.

ICAM-1: Intercellular Adhesion Molecule-1.

IFN: interferon.

Ig: Immunoglobulin.

IL: Interleukin.

JAMA: japonicum associated microsomal antigen.

KS: katayama syndrome.

LFA-1: leukocyte functional antigen 1.

M: Mean.

MAb: monoclonal antibody.

MAMA: mansoni associated microsomal antigen.

MHC II: major histocompatability class II.

MOHP: ministry of health and population.

NS: Non significant.

NSCP: national schistosomiasis control program.

NTDs: neglected tropical diseases.

P: P-value.

PZQ: praziquantel.

S: significant.

SD: Standard deviation.

S.hematobium: schistosoma hematobium.

S.intercalatum: schistosoma intercalatum.

S.japonicum: schistosoma japonicum.

S.malayensis: schistosoma malayensis.

S.mansoni: schistosoma mansoni.

S.mekongi: schistosoma mekongi.

TBRI: Theodor Bilharz Research Institute.

TGF: transforming growth factor.

TGR: Thioredoxin glutathione reductase.

Th cells: T helper cells.

TNF: Tumor Necrosis Factor.

WHO: world health organization.

List of tables

List of figures

Introduction

INTRODUCTION

Schistosomiasis remains one of the most prevalent parasitic infections in the world. It is estimated that more than 200 million people in 76 countries are infected and approximately 650 million people are at risk of infection. The majority (85%) of those infected and at risk live in Africa ***(WHO, 2005***).

The factors that help its endemicity in developing countries of tropical and subtropical areas are multiple and variable; the presence of the specific intermediate mollusc host, low socio economic conditions, poor sanitary facilities and water irrigation projects. Exposure to infection starts as early as at 6 months of age and maximal infection in early childhood (10-14 years) followed later by progressive disease ***(Dessein et al., 1992).***

Two species of human schistosomiasis are endemic in Egypt; schistosoma hematobium and schistosoma mansoni. Schistosoma hematobium was discovered in Egypt in 1851 by Theodor Bilharz ***(Bilharz, 1853)*** and the life cycle first described in Egypt by Leiper in 1915 ***(Leiper, 1915).***

Both species had decreased in Nile delta, *S. mansoni* had increased in Giza & *S. hematobium* had decreased in upper Egypt, except in Sohag, Qena, and Aswan . There was dramatic increase in these 3 governorates. Where land had been converted to perennial irrigation. ***(Wright,1973).***

Since that time there have been numerous studies in both upper Egypt & in the Nile delta that confirm the trend of decreasing *S. hematobium* in both of these regions , and a resurgence of *S. mansoni* throughout of the Nile delta

with expansion into upper Egypt **.** ***(Medhat et al., 1993)*** .and ***(Abdel-Wahab and Mahmoud, 1987)***.

In Egypt, there is extensive documentation that the government's efforts have been succeful in reducing both the prevalence and morbidity of the disease ***(Engels et al., 2002)***. However schistosomiasis is still endemic in rural areas of Egypt and in spite of the low endemicity level, transmission still occurs ***(World health organization, 2002)***.

The Ministry of Health & Population (MOHP) began planning for the national schistosomiasis control programme (NSCP) in 1975, the implementation of NSCP started in 1977 through the primary health care system ***(Youssef , 2005) .***

The national control programme is based on selective population chemotherapy & mass chemotherapy supported by health education & local application of chemical molluscicides. These control tools were implemented through NSCP funded by the government of Egypt, the African Development & the World Bank ***(Youssef , 2005).***

Praziqauantel (PZQ) is still the ideal drug for implementation of schistosomiasis control programs ***(Doenhoff et al., 2002)***.

According to MOHP statistics ,in 1983 prevalence of *S.hematobium* was 35% , *S. mansoni* was 38,6% and by the end of 2007 both infections have been significantly reduced < 1% , *S. hematobium* has virtually disappeared from Nile delta governorates prevalent in upper Egypt with a prevalence 0.9%, while *S.mansoni* prevalent in the Nile delta governorates with a

prevalence 0.6% , schistosomiasis prevalence in Giza governerate is as following ***(Yousef and Yousef,2008)***:

Villages with prevalence 0-1٪ are 129 villages.

Villages with prevalence 1-3٪ are 5 villages.

No villages have prevalence > 3 ٪.

The study was hold in Theodor Bilharz Research Institute which lies in Warrak Elhadr, Giza governorate. Warrak Elhadr is a sub- urban area & at its peripheries there are rural areas.

Detection of ova in the urine, stool or in rectal biopsy is still the accepted method for diagnosing schistosomal infection as an indication for specific chemotherapy, for evaluating the response to such chemotherapy and for field epidemiological surveys. Rectal snip procedure, irrespective of its level of sensitivity, gives sure diagnostic positivity ***(Abdel Hafez, Bolbol, 1992)***.