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بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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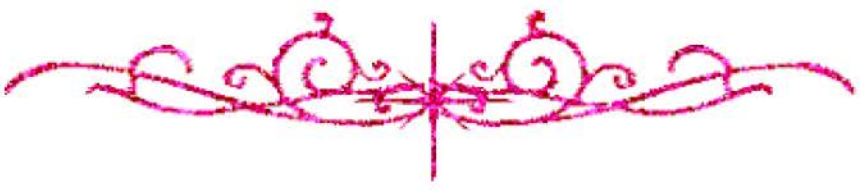

بالرسالة صفحات لم ترد بالأصل

B 17771

LONG-TERM FOLLOW UP STUDY OF VOLUNTEER BLOOD DONORS WITH POSITIVE HEPATITIS C VIRUS ANTIBODIES IN SUEZ GENERAL HOSPITAL

Thesis
Submitted in Partial fulfilment for
the requirement of M. Sc. Degree
in
INTERNAL MEDICINE
by

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DEDICATION

To my wife, Amany, Without whose help and support , this thesis and many other things would not be possible.

Acknowledgment

I would like first to than and praise to Almighty God for helping me complete this work.

I would like then to express my sincere thanks and deepest gratitude to **Prof. Dr. Mohamed Ibrahim Shoeir**, Professor of Internal Medicine, Suez Canal University for his Kind supervision and great encouragement.

I would like also to express my warm gratitude and appreciation to **Dr. Amr Abbas Hassan**, Ass. Professor of Tropical Medicine, Suez Canal University, who inspired me with idea, and for his continuous guidance and effort during all the steps of this work.

I am greatly honored to express to my deep gratitude to **Dr. Mostafa Mohamed Ragheb,** Lecturer of Tropical Medicine, Suez Canal University, he gave me much of his time, experience, meticulous invaluable advice and support, that can not be expressed in words. His brotherhood attitude, encouragement and constructive ideas were indispensable for the completion of this work.

To **D.r Ahamed El-Gohary**, Ass. Professor of Clinical Pathology, Suez Canal University, many thanks and gratitude are own for his great help which enable me to be involved in the following up of many patients with HCV infection.

I wish to express my sincere thanks and deepest gratitude to my colleagues in Communicable Disease Research Training Center at Suez, Suez Canal University, for helping me during all steps of this work.

My deepest appreciation thanks is offered to all the staff members of Communicable Disease Research Training Center at Suez- Suez Canal University, for their help through this work.

Lastly, my thanks and best wish of healthy to all the patients who participated in this work.

CONTENTS

List of abbreviation and symbols :

a-IFN : Alpha interferon.

ALT : Alanine aminotransferase ζ SGPT.

AST : Aspartate aminotransferase ζ SGOT.

CAH : Chronic Active hepatitis.

CDRTC : Communicable Diseases Research and Training Center.

DNA : Deoxytibonucleic acid.

ELISA : Enzyme linked immunosorbent assay.

GGT : Gamma glutamyl transferase.

Gp : Glycosylated protein.

HAV : Hepatitis A virus.

HbcAg : Hepatitis B core antigen.

HbsAg : Hepatitis B surface antigen.

HBV : Hepatitis B virus.

HCV : Hepatitis C virus.

HEV : Hepatitis E virus.

HIV : Human immunodeficiency virus

HS : Highly significant.

MUTIW : Million unit twicely per week.

NANBH : Non-A, non-B hepatitis.

NS : Non structural (proteins).

PBC : Primary biliary cirrhosis.

PCR : polymerase chain reaction.

RIBA : Recombinant immunoblotting assay.

RNA : Ribonucleic acid

S : Significant.

ULN : Above normal limit.

INTRODUCTION

INTRODUCTION AND AIM OF WORK

Chronic non A, non-B hepatitis has been recognized for about two decades; 90 % or so of these cases have been found to be due to hepatitis C virus (HCV), while 9-10 % are due to, still, an unknown factor. HCV itself, though better understood, is not fully "explored"; and everyday new knowledge appears. It is a single stranded open frame RNA virus of the Flaivirus group. Its full structure is not fully understood, but some sequences of aminoacids in some areas of its structure have been recognized [*Abd El-Fattah, 1993*].

In 1989 Choo et al, developed the first generation anti-HCV test which tested for the non structural protein of the virus, C100-3, but this test had some specificity problems and was found to be falsely positive in some immunologically determined liver diseases. Further tests were refined to detect antibodies to C 100-3, C33, C22 (second generation ELISA) and then the confirmatory test that added a fourth parameter, 5-1-1, using recombinant immunoblot assay [RIBA2] [*Van der Puel et al., 1991*]. These newer tests increased the sensitivity of detection of hepatitis C infection and allowed its earlier diagnosis [*Cristiano et al., 1991*].

The presence of these antibodies indicates that the individual (donor or patient) has been infected with HCV, may harbor infectious HCV, and may be capable of transmitting the virus [*Tedder et al, 1991*]. Polymerase Chain Reaction (PCR) is a new technique that allows us to direct assay HCV-RNA [*Cristiano et al., 1991*], even quantitatively [*Brillanti et al., 1991*]. Furthermore PCR has shown that the HCV has many sequence variables. Also PCR has become the gold standard of infection detection,

because it detects HCV-RNA when all other tests are negative. Furthermore, PCR can detect the virus in the acute phase [*Lazizi et al., 1992*]. HCV-RNA is present mainly in the serum and in the liver tissue, and is also detectable in the saliva, sweat and semen; but in very low concentrations, which makes them very unlikely source of infectivity [*Nakano et al., 1992*].

Worldwide, HCV infection is probably the most important liver disease. It is estimated that there are 300 million carriers of the virus, about 2.5 million in Europe. In the USA, it is conservatively estimated that approximately 170.000 cases of acute hepatitis C occur per year. Of these, between 70 and 80 % will maintain infection and develop chronic hepatitis [*Alter, 1995*]. HCV in the USA, accounts for 8000 - 10.000 deaths per year from chronic liver disease and for 1000 people undergoing transplantation [*Sherlock and Dooley, 1996*].

Hepatitis C is carried by about 0.01 - 2 % of blood donors worldwide. The risk factors associated with acute hepatitis C in the USA are present or past injection of drugs, or blood transfusions, health-care worker, sexual/household contact and a low socioeconomic status [*Alter MJ, 1995*] Earlier studies using first-generation tests overestimated the prevalence of anti-HCV in blood donors. If supplemental testing is used, the prevalence in UK and Scandinavia is only 0.01 - 0.1 % and in the USA, only 0.3 %. [*Sherlock and Dooley, 1996*].

Egypt seems to have the highest prevalence of HCV in blood donors. Anti-HCV was found in 12 % of total primary children, 22.1 % of army recruits and 16.4 % in children with hepatic

splenomegaly [*Abdel-Wahab et al., 1994*]. In another study El Gohary and his co-workers in 1993 concluded that about 14.5 % of volunteer blood donors were positive for HCV-antibodies, using recombinant second generation enzyme immuno assay [EIA] and recombinant immuno blot assay (RIBA). Although in some donors with HCV infection the antibodies may be negative and remain so for prolonged period [*Esteban et al., 1991*].

About 54 % of cases are community acquired. Many patients may have been infected through repeated intravenous injections as for treatment of schistosomiasis, ritual circumcision, tattoo, dental therapy, barber blades, manicure or sharing personal utensils [*Abd El Fattha et al., 1993*]. Direct mother to neonate does not seem to pause a problem except when the mother harbors HIV infection [*Novati et al., 1992*].

Chronic HCV is an indolent disease extending over many years. The acute attack is usually unrecognized and has no clinical features which will predict chronicity. Nevertheless, 80 % of acute HCV infected patients will develop chronic hepatitis and 20 % of them will go on to cirrhosis. [*Sherluck and Dooley, 1996*]. The patients with chronic HCV may be completely asymptomatic, and diagnosis is made only at the time of blood donation or a routine biochemical screen. Such patients may have prolonged periods of normal transaminases although chronic hepatitis is confirmed histologically. [*Alter et al., 1991*]. Fatigue is a major symptom. The patients feels below par and this varies from time to time[*Sherluck and Dooley, 1996*].

As a high prevalence of HCV among Egyptian volunteer blood donors and most of them are apparently healthy this motivated us to reply on the following questions :

* What is the significance of this infection to these asymptomatic individual ?
* What are the risk factors associated with high prevalence of HCV in Egypt ?
* What proportion of antibody-positive individuals have chronic infections ?
* What proportion will have significant liver disease ?
* What insights can we drive from this asymptomatic donor population in assessing the natural history of HCV infection ?

❖ **Aim of the work**

✸ This study aims at 6-month-assessment of morbidity of hepatitis C virus infection among accidentally discovered volunteer blood donors in Suez General hospital.Assessment will be clinical, biochemical, serological and ultrasonography examination.

✸ Identify the risk factors possible contributing to high prevalence of HCV in volunteer blood donors.

✸ Establish a base-line information for long-term follow up (up to 5 years) in CDRTC in Suez.