CHARACTERISTICS OF BRUCELLOSIS IN AB-BASEYA FEVER HOSPITAL

Thesis for the partial fulfilment of M.SC in Tropical Medicine.

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(2010)

ACKNOWLEDGMENT

First and foremost, I feel always in depth to *Allah* the most Merciful the most Gracious. Thanks to *Allah* who has lightened my path to become a humble student of a noble profession and granted me the ability to accomplish this work.

I would like to express my sincere gratitude and deep appreciation to *Dr Maissa El Said Alraziky Professor of Tropical Medicine Cairo University;* for her close supervision, support, guidance, patience, valuable instructions and advices, continuous help. I learned from her many not only in medicine but also in life.

I am profoundly grateful to *Dr Ahmad Fuad Soliman Assistant professor of Tropical Medicine Cairo University* for his guidance, valuable comments and careful supervision .He has generously dedicated much of his valuable time and effort to present this work in an ideal form.

Acknowledgment

My sincere thanks go to *Dr Wafaa El Akel Consultant of Tropical medicine Cairo University*; for her kind supervision and faithful guidance. She generously did the statistical part of this work in supportive, patience and educative way.

I am forever grateful to all *my professors and Colleagues I* owe them very much for their constant education and advices.

Many thanks for my *parents, brother and sister*, for their love, support, patience, and understanding &always praying for me.

Last but not least, no words ever can express my feeling of admiration and extreme thanks to *the patients*, without their help, this work could not have seen the light.

ABSTRACT

The Demographic, clinical, laboratory findings during the active course of this infection. Inclusion criteria included a compatible clinical picture with either brucella (SAT) antibody titer of 1/360 and or a positive blood culture for brucella organism.

KEY WORDS

Characteristics

Brucellosis

Hospital

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List of abbreviations

2ME	2-mercaptoethanol
AFI	acute febrile illness
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
BAPA	buffered acidified plate antigen
B.abortus	Brucella abortus
B.canis	Brucella canis
B.melitensis	Brucella melitensis
B.neotomae	Brucella neotomae
B. ovis	Brucella ovis
B.sius	Brucella sius
B.pinnipediae	B.pinnipediae
C°	Centigrade Celsius
CDC	Centre for Disease Control and Prevention
CDS	Communicable Disease Surveillance
CNS	Central nervous system
CO2	Carbon dioxide
ELISA	Enzyme-linked immunosorbent assay
EMB	Eosin methylene blue
ESR	Erythrocyte sedimentation rate
EU	European Union
FAO	Food and Agriculture Organization
FPA	Fluorescence polarization assay
FUO	Fever of unknown origin
HB%	Hemoglobin percent
HRM	High resolution melt
IFN- γ	Interferon-gamma
LPS	Lipo polysaccharide
MDH	Minnesota Department of Health
mg	Milligram
MMWR	Morbidity &Mortality weekly reported
MRI	Magnetic resonance imaging
NaCl	Sodium chloride

NS	Non specific
OIE	World Organization for Animal Health
PCR	polymerase chain reaction
P value	statistical significance value
PEP	post exposure prophylaxis
PH	Acid-base logarithm
PO	Per-oral
RBC	Red Blood Cells
RBPT	Rose Bengal Plate Agglutination Test
RCT	randomized control study
rRNA	Ribosomal ribonucleic acid
SAT	Standard agglutination test
SD	Serum Dextrose
SEM	standard error of the mean
SPP	Species
SPSS	statistical package for the social sciences
T.bil	Total bilirubin
TMP-SMX	Trimethoprim-sulfamethoxazole
TNF- **α**	tumour necrosis factor alpha
WBC	White blood cell
WHO	World Health organization

Introduction

Brucellosis is an old disease with minimal mortality yet human brucellosis remains the commonest and major zoonotic disease worldwide with more than 500 000 new cases annually **(Corbel 1997) (Pappas *et al.*, 2005, 2006).** It is also called undulant, Mediterranean, or Malta fever **(Barend *et al.*, 2009)**

Human brucellosis is an acute or chronic systemic disease, which can involve any of the organs or systems of the body **(Mantur *et al.*, 2007).** It is a serious disease that primarily affects animals, which act as reservoirs for human infection **(Samahaa *et al.*, 2009)**

Brucellosis in endemic and non-endemic regions remains a diagnostic puzzle due to misleading non-specific manifestations and increasing unusual presentations. Fewer than 10% of human cases of brucellosis may be clinically recognized and treated or reported **(Mantur *et al.*, 2007).**

Four species, B. *melitensis*, B. *abortus*, B. *suis*, and B.*canis*, are known to cause disease in humans. Brucella species are gram-negative facultative intracellular coccobacilli **(Barend *et al.*, 2009)** Currently B. *melitensis* remains the principal cause of human brucellosis worldwide **(Mantur *et al.*, 2007).**

Brucellosis

Many countries have eradicated Brucella abortus from cattle, in some areas Brucella melitensis has emerged as a cause of infection in this species as well as in sheep and goats **(Lane B *et al.,* 1997)** Brucellosis is a known cause of small household outbreaks **(Celebi *et al*., 2007) (Almuneef *et al.,* 2004)**

A proper and prompt diagnosis is important, as the treatment requires specific and prolonged antibiotics **(Solera *et al*., 1997).**

The bacterium does not have classic virulence factors (e.g., exotoxins or endotoxins) and the pathogenicity of its lipo polysaccharide (LPS) is not typical **(Pappas *et al*., 2005)**

Prevention of brucellosis in humans still depends on the eradication or control of the disease in animal hosts, the exercise of hygienic precautions to limit exposure to infection through occupational activities, and the effective heating of dairy products and other potentially contaminated foods (**Corbel 1997**) Protective clothing & barriers while handling still births, products of conception and cultures can reduce occupation-related brucellosis **(Young 1995) (Madkour 2001).**

Current treatment regimens for brucellosis differ significantly in their effectiveness. Treatment should preferably include dual or triple regimens with the optimal treatment being doxycycline-aminoglycoside-rifampicin **(Skalsky *et a.,l* 2008).**

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Aim of the work

This study is aiming for portraying current status of brucellosis profile; epidemiological pattern (demographic and socio economic level), risk factors and clinical presentation, laboratory profile and response to treatment in cases diagnosed in Ab-baseya fever hospital.

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Historical Perspective.

Brucellosis is a zoonosis transmitted to humans from infected animals, Sir **David Bruce** (1855-1931): British Army physician and microbiologist, who discovered Micrococcus melitensis, he discovers the microorganism responsible for Malta fever on July 9, 1887. Which he called Micrococcus melitensis.

It was isolated from the spleen of a British soldier who had died of the disease. He later established goats as the main reservoir for infection by identifying the organism in their blood, urine and milk. This discovery helped explain the epidemiology of the disease **(Bruce 1887).**

Bernhard Bang (1848-1932): Danish physician and veterinarian discovered at 1897 that Bacterium abortus could infect cattle, horses, sheep and goats, while investigating contagious abortion that had been affecting cattle in Denmark for over a century. He also discovered that the organism affected horses, sheep, and goats. Thus the disease becomes known as "Bang's disease".

The connection between animals and humans was discovered by **Alice Evans**, an American bacteriologist in the 1920's.

The morphology and pathology of the organism was very similar between Bang's Bacterium abortus and Bruce's Micrococcus melitensis.