

**KAP Study in Brucellosis among Personnel in Direct Contact
with Animals in Fayoum Governorate**

Thesis submitted
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Abstract

Brucellosis is still an endemic serious disease among domestic animals and human, constituting a public health problem in Fayoum Governorate; hence this descriptive study was carried out to expose the existing knowledge, attitude and practices of the available direct animal contacts towards brucellosis in Fayoum governorate. A total of 300 persons of direct animal contacts were interviewed by using questionnaire form. The findings from the study revealed that, the general awareness about brucellosis was low (about 49.7% of the participants not heard about brucellosis) most of them were animal breeders and abattoir workers. There was significant difference between the 3 groups regarding knowledge (p value=0.000) with higher mean score among animal examiners. The attitude toward preventive measures of brucellosis was positive. Good knowledge and positive attitude especially from veterinary doctors not always translated into sound practices, mainly due to lack of supplies (masks, gloves, coat and vaccines). The general practices of animal breeders regarding, cleaning, disposal of animal waste and vaccination of animals was bad.

Key words: brucellosis, knowledge, practice, contact with animals, animal breeders, brucella species.

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Contents

| Titles | page |
|--|---------|
| 1-Introduction and Aim of work | 1-5 |
| 2-Review of Literature | |
| a-History of Brucellosis | 6-11 |
| b-Epidemiology of brucellosis | 12-44 |
| c-Treatment of brucellosis | 45-48 |
| d-Prevention and control | 49-63 |
| f-Eradication | 64 |
| g-Surveillance | 65-68 |
| h-Social and Economic impact of brucellosis | 69 |
| i-Situation of brucellosis in Egypt | 70-79 |
| j-Definitions | 80 |
| 3-Subjects and Methods | 81-86 |
| 4-Results | 87-116 |
| 5-Disscussion | 117-126 |
| 6- Conclusion and Recommendation | 127-128 |
| 7-Summary | 129-134 |
| 8-References | 135-159 |
| 9-Appendex | 160-168 |
| 10-Arabic Summary | 169-172 |

List of Tables

| Review | | |
|------------|--|------|
| Tables | Titles | page |
| Table(I) | Survival periods of <i>B. abortus</i> or <i>B. melitensis</i> in various substrates | 19 |
| Table(II) | Common animals reservoirs of <i>Brucella</i> spp | 24 |
| Table(III) | Symptoms and signs in 500 patients with brucellosis due to <i>B. melitensis</i> | 38 |
| Table(IV) | Antibiotics Used in the Treatment of Brucellosis in Humans | 47 |
| Table(V) | advantages and disadvantages of various brucellosis control strategies | 56 |
| Results | | |
| Table (1) | Distribution of the interviewed groups by their age | 88 |
| Table (2) | Distribution of the interviewed groups by their occupation | 89 |
| Table (3) | Distribution of the interviewed groups regarding hearing about brucellosis | 90 |
| Table(4) | Distribution of all interviewed (direct animal contacts) regarding their knowledge about brucellosis | 91 |
| Table(5) | comparison of studied groups having correct general knowledge about brucellosis | 97 |
| Table(6) | comparison in between studied groups having correct knowledge about different mode of transmission in-between animals | 98 |
| Table(7) | comparison in between studied groups having correct knowledge about symptoms of brucellosis in animals | 99 |
| Table(8) | comparison in between studied groups having correct knowledge about different mode of transmission of brucellosis to human | 99 |
| Table(9) | comparison in between different studied groups having correct knowledge about symptoms of brucellosis in human | 100 |
| Table(10) | comparison between studied groups having correct knowledge about different preventive measures of brucellosis in animals | 101 |
| Table(11) | comparison between different studied groups having | 102 |

| | | |
|--------------------|---|-----|
| | correct knowledge about different preventive measures of brucellosis in human | |
| Continue table(11) | comparison between different studied groups having correct knowledge about different preventive measures of brucellosis in human | 102 |
| Table(12) | comparison between different groups regarding their knowledge, attitude and practice scores | 113 |
| Table(13) | comparison between animal breeders and abattoir workers by using Schaflé test | 114 |
| Table(14) | comparison between knowledge, attitude and practice for those infected and not infected with brucellosis | 115 |
| Table(15) | comparison between attitude and practice scores of who was trained and those not trained about brucellosis of veterinary doctors | 116 |
| Table(16) | comparison between practice score (personal protective devices and waste disposal) of veterinary doctors and availability of supplies | 116 |

List of Figures

| Review | | |
|----------------|---|------|
| Figure | Title | page |
| Figure (I) | Microscopic picture of Brucella | 14 |
| Figure (II) | the Pathogenesis of Brucellosis and the Host Immune Response | 17 |
| Figure (III) | The Global Incidence of Human Brucellosis | 23 |
| Figure (IV) | strategy for the control of brucellosis | 55 |
| Figure(V) | Monthly distribution of patients with brucellosis among hospitals in Egypt | 74 |
| Results | | |
| Figure (1) | Sex distribution of interviewed direct animal contact | 88 |
| Figure (2) | Distribution of the interviewed groups by their occupation | 89 |
| Figure (3) | Distribution of the interviewed groups by their education | 90 |
| Figure (4) | Distribution of the interviewed who heard about brucellosis and acquired brucellosis infection before | 91 |
| Figure (5) | Distribution of the participants regarding common animal reservoirs | 92 |
| Figure (6) | Distribution of the participants regarding mode of transmission in-between animals | 92 |
| Figure (7) | Distribution of the participants regarding symptoms of brucellosis in animals | 93 |
| Figure (8) | Distribution of the participants regarding mode of transmission in human | 94 |
| Figure (9) | Distribution of the participants regarding symptoms of brucellosis in human | 95 |
| Figure (10) | Distribution of the participants regarding their knowledge about preventive measures in animals | 95 |
| Figure (11) | Distribution of the participants regarding their knowledge about preventive measures in human | 96 |
| Figure (12) | Distribution of the participants regarding their knowledge about at risk groups for brucellosis infection | 97 |
| Figure (13) | Distribution of the participants regarding their attitude toward protective measure of brucellosis | 103 |
| Figure (14) | Correlation between attitude and practice of veterinary doctors | 104 |
| Figure (15) | Distribution of veterinary doctors regarding not | 104 |

| | | |
|-------------|---|-----|
| | wearing masks during animal examination | |
| Figure (16) | Distribution of veterinary doctors regarding practices of vaccination | 105 |
| Figure (17) | Distribution of veterinary doctors regarding their causes of not vaccinating the animal | 105 |
| Figure (18) | Percentage of veterinary doctors regarding using of waste containers | 105 |
| Figure(19) | Methods of getting ride of waste by veterinary doctors | 106 |
| Figure (20) | Distribution of animal breeders regarding types of the animal they had | 106 |
| Figure (21) | Practices of animal breeders regarding mixing different types of animals | 107 |
| Figure (22) | Distribution of animal breeders regarding the place of animal breeding | 107 |
| Figure (23) | Percentage of animal breeders had animal aborted or delivered dead fetus before | 108 |
| Figure (24) | Distribution of animal breeders regarding the person responsible milking of the animal | 108 |
| Figure (25) | Practices regarding wearing gloves during milking | 109 |
| Figure (26) | Practices regarding cleaning the animal place regularly | 109 |
| Figure (27) | Practices regarding wearing gloves during cleaning the animal place | 109 |
| Figure (28) | Practices regarding washing the hands after cleaning of the animal place | 110 |
| Figure (29) | Practices regarding washing the hands after feeding of the animal | 110 |
| Figure (30) | Methods of getting ride of animal excreta by animal breeders | 111 |
| Figure (31) | Methods of getting ride of placenta or dead animals by animal breeders | 111 |
| Figure (32) | percentages of animal breeders let their children helping in breeding animals | 112 |
| Figure (33) | practices of animal breeders regarding animal Vaccination against brucellosis | 112 |
| Figure (34) | Reasons why animal breeders don't vaccinate their animals | 113 |

List of abbreviation

| | |
|---|--|
| AFI | Acute Febrile Illness |
| B. abortus | Brucella abortus |
| B.C | Before century |
| B.suis | Brucella suis |
| b.w | Body weight |
| BacT/Alert, BACTEC 9000 series, VITA1, ESP | Automated blood culture systems seem to shorten the time needed to detect organisms from blood and other body fluids |
| BAPA | Buffered acidified plate antigen |
| CFT | Complement fixation test |
| DFRA | Department for Environment, Food & Rural Affairs. |
| DNA | Deoxyribonucleic acid |
| EC | European commission |
| EDTA | Ethylenediamine tetra-acetic acid. |
| ELISA | Enzyme linked immunosorbent assay |
| ESUE | Epidemiologic and Surveillance Unit of Egypt |
| EU | the European Union |
| FAO | Food and Agriculture Organization |
| iELISAs | indirect Enzyme linked Immunosorbent Assays |
| IgG | Immunoglobulin G |
| IgM | Immunoglobulin M |
| M. melitensis | Micrococcus melitensis |
| MERC project | Middle East Regional Cooperation project |
| MMHED | Mexican Ministry of Health's epidemiology directorate |
| MZCP | Mediterranean Zoonoses Control Programme |
| NASPHV | National Association of State Public Health Veterinarians |
| OIE | Office International des Epizooties |
| PCR | polymerase chain reaction |
| PCR | Polymerase Chain Reaction |
| PHAC | Public Health Agency of Canada |
| PIMC | Primary Industries Ministerial Council |

| | |
|---------|---|
| RBT | Rose Bengal plate test |
| SAT | Serum agglutination test |
| SAT | Standard Agglutination Test |
| S-LPS | Smooth-lipopolysaccharide |
| TAHRP | Tri-national Animal Health research Project |
| TMP/SMZ | Trimethoprim–Sulfamethoxazole |
| US | Union of Soviet |
| USA | United States of America |
| USDA | United States Department of Agriculture |
| WHO | World Health Organization |

Introduction

Brucellosis has been an emerging disease since the discovery of *Brucella melitensis* by Sir David Bruce in 1887. The disease was found to affect British armed forces and the local population of Malta. Brucellosis has many synonyms derived from the geographical regions in which disease occurs e.g., Mediterranean fever, Malta fever, Gibraltar fever, Cyprus fever; from the remittent character of the fever e.g., undulant fever; or from its resemblance to malaria and typhoid e.g., typhomalarial fever or intermittent typhoid (**Manture et al., 2007**).

Brucellosis caused by six pathogenic species: *B. melitensis*, *B. abortus*, *B. suis*, *B. ovis*, *B. canis* and *B. neotomae*. (**Moreno et al., 2002**), however Human disease is caused mainly by *four species*, *B. melitensis* (found in sheep and goats), *B. abortus* (found in cattle), *B. suis* (found in swine) and *B. canis* (found in dogs). Disease from marine species has also emerged (**McDonald et al., 2006**).

Brucellosis can involve any organ of the body system, as it is a systemic disease. The symptoms of brucellosis are nonspecific. The majority of patients complain of fever, sweats, malaise, anorexia, headache, arthralgia, and back-ache. Human brucellosis is known for complications. Complications can be very diverse depending on the specific site of infection. Osteoarticular, genitourinary, gastrointestinal, nervous, cardiovascular, skin and mucous membranes and respiratory complications are observed. Bone and joint involvement is the most frequent complication of brucellosis and occurs in up to 40% of cases in some series (**Mantur et al., 2007**).

So brucellosis is considered the most important Zoonosis of social and economic impacts, despite the control measures undertaken by national authorities in many developing countries (**Acha and Szyfres, 2001**).

The epidemiology of human brucellosis has drastically changed over the past decade, several areas traditionally considered to be endemic—e.g., France, Israel, and most of Latin America—have achieved control of the disease. On the other hand, new foci of human brucellosis have emerged (**Pappas et al., 2006**), especially in the Eastern Mediterranean region, brucellosis is considered the main zoonotic disease in this region (**Oraby et al., 2007**).

The world Health Organization reported that, half million new human cases are reported annually worldwide and these numbers are greatly underestimate the true incidence of human disease as the actual number of cases is estimated to be at least 10 times the figures officially announced(**WHO,1997 and Semenish,2002**).

In Egypt, brucellosis has been reported and recorded as early as 1939, however, attention was directed to the diseases during the 1960s with the importation of Friesian cows the incidence of brucellosis in the cattle on some farms become very high. The disease was reported also in buffaloes, sheep, goats, swine, camels, horses, donkeys, dogs and rats (**Refai, 2003**). And until now, brucellosis is still endemic serious disease among domestic animals and human in Egypt; inspite the attempts that were implanted in the country to control the disease (**Hussein et al., 2005**).

Results from the Egyptian infectious disease hospital surveillance program suggest that brucellosis is a widespread and significant health problem in Egypt, since there is a substantial increase in the number of patients with brucellosis recorded in recent years, from 204 registered cases in 1995 to 3659 registered cases in 2004 (**E S U E, 2004**).

The apparent high burden of disease, coupled with data implicating consumption of dairy products as a risk factor for disease, indicate a need to evaluate the effectiveness of *Brucella* control programs in Egypt. Prior to laboratory and diagnostic upgrades, brucellosis was infrequently diagnosed; with most AFI patients being classified and treated as typhoid fever, which resulted in inappropriate antimicrobial therapy. The high frequency of brucellosis as a cause of AFI, coupled with the significant overlap of symptoms among patients with brucellosis and typhoid fever, emphasize the importance of laboratory-based diagnosis of patients with AFI (**Affifi et al., 2005**).

In Egypt, brucellosis caused mainly by *B. melitensis* and *B. abortus* (**Young, 1995**). But the most common brucella species recorded in Egypt is *B. melitensis* particularly biovar 3 (**Refai, 2002**).

The main sources of *Brucella* are infected animals or their products, such as milk, cream, butter, fresh cheese, ice cream, urine, blood, carcasses, and abortion products. Routes of transmission of the infection to humans include direct contact with infected animals and their secretions through cuts and abrasions in the skin, by way of infected aerosols inhaled or

inoculated into the conjunctival sac of the eyes, or via the ingestion of unpasturized dairy products.

(Memish, 2001).

In Egypt, animal exposure occurs in all regions. In addition, unpasturized dairy products are widely available throughout the country, and this resulted in the wide scale distribution of disease throughout the country **(Affifi et al., 2005).**

Aim of work

Goal of study.

“Aiming in the future to create a health education program to help in reduction of the prevalence of brucellosis among animal contacts”

Objectives.

- 1-To identify knowledge, attitude and practices of persons in contact with animals regarding modes of transmission and risk factors of brucellosis.
- 2- To help in development of health education messages to help enhancement behavioral change concerning brucellosis.