Comparative Study on Some Immunodiagnostic Techniques Currently Used for the Diagnosis of Lymphatic Filariasis in Egypt

Thesis

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By

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جامعه القاهره / كليه الطب
الدراسات العليا

محضر
اجتماع لجنة الحكم على الرسالة المقدمة من
الطبيبة/ [illegible]
توطئة للحصول على درجة الماجستير / الدكتوراه
فى علم الطفيليات

تحت عنوان : باللغة الانجليزية : Comparative study on some immunodiagnostic techniques currently used for the diagnosis of lymphatic filariasis in Egypt

: باللغة العربية : دراسة مقارنة لبعض الاختبارات التشخيصية المناعية المستخدمة حاليا في الكشف عن مرض الفلاريا الليمفاوية في مصر

بناء على موافقة الجامعة بتاريخ / / ٢٠٠ تم تشكيل لجنة الفحص والمناقشة للرسالة المذكورة أعلاه على النحو التالى :-

١. أ.د. هدى محمد حامد رشدي .... عن المشرفين
٢. أ.د. [illegible] .... ممتحن داخلى
٣. أ.د. [illegible] .... ممتحن خارجى

بعد فحص الرسالة بواسطة كل عضو منفردا وكتابة تقارير منفردة لكل منهم انعقدت اللجنة مجتمعة فى يوم [illegible] بتاريخ ٢٠٠٩/١٢/١٩ بقسم [illegible]

بكلية الطب - جامعة القاهرة وذلك لمناقشة الطالب فى جلسة علنية فى موضوع الرسالة والنتائج التى توصل اليها وكذلك الأسس العلمية التى قام عليها البحث .

قرار اللجنة : اطلعت اللجنة على [illegible] والمعلومات [illegible] الرسالة [illegible] والطالبة [illegible]

وترى اللجنة قبول الرسالة

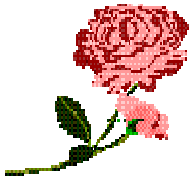
توقيعات أعضاء اللجنة :-

المشرف الممتحن	الممتحن الداخلى	الممتحن الخارجى
[illegible]	[illegible]	[illegible]

عصام

٢٠٠٩/١٢/١٩

In the name of Allah
the Most Gracious the Most Merciful



To my dearly beloved father, without his knowledge, wisdom, and guidance, I would not have the goals I have to strive and be the best to reach my dreams! I wish I could tell him I love him and appreciate all that he had done for me! But I know in my heart he did know.

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Abstract

The present work constitutes a comparative study on a total of 82 Egyptian subjects. The study groups comprised 38 lymphatic filariasis cases; including 18 microfilaraemic asymptomatic subjects and 20 symptomatic seropositive amicrofilaraemic subjects. In addition to 32 cases infected with other parasites (schistosomiasis, fascioliasis and hydatidiosis patients) and 12 apparently healthy subjects seronegative for those parasites as well as for filariasis, to be used as control group.

All serum samples were tested for the presence of anti-filarial antibodies, utilizing reagents currently used for the diagnosis of lymphatic filariasis in Egypt. The commercially available *Dirofilria immitis* adult crude antigen was used to detect the serum IgG in indirect ELISA, IgG4 ELISA, Dot-ELISA and dipstick ELISA techniques.

Among 18 microfilaraemic cases, these tests were positive in 11 (61.1%), 18 (100%), 14 (77.8 %) and 14 (77.8 %), respectively. While the corresponding figures among the symptomatic amicrofilaraemic cases were 19 (95%), 0 (0%), 17 (85 %) and 16 (80%) with specificity of 75%, 95.5%, 88.6% and 88.6%, respectively.

In this study, comparable correlations were observed between the ELISA results with the parasitological and clinical status of the lymphatic filariasis group. IgG4 ELISA was found more sensitive and specific in detection of microfilaraemic asymptomatic cases than other indirect IgG ELISA techniques.

On the other hand, Dot ELISA was found to be relatively more sensitive than other techniques among all groups of patients examined.

In the present study, *Dirofilaria immitis* adult worm crude antigen was utilized in the four ELISA tests with relatively high degree of sensitivity and specificity in addition to its commercial availability, rendering it as a reliable reagent of a high immunodiagnostic potential.

Key words: Indirect ELISA, *Dirofilaria immitits* antigen, Dot ELISA, Dipstick ELSIA and bancroftian filariasis.

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List of Abbreviation

ADLA	Acute Dermato-Lymphangitis
ANOVA	Analysis of Variance
Bm14	*Brugia malayi* 14
BC	Before Christ
CBT	Checkerboard Titration
CD	Cluster of Differentiation
CFA	Circulating Filarial Antigen
CICs	Circulating Immune Complexes
CTLA	Cytotoxic T-Lymphocyte Antigen
DAB	Diaminobenzidine
DEAE	Diethylaminoethyl
DEC	Diethylcarbamazine
DIA	Dipstick Immunoassay
DNA	Deoxyribonucleic Acid
Dot-IGSS	Dot-Immunogold Silver Staining
D.W	Distilled Water
ELISA	Enzyme-Linked Immunosorbent Assay
ES	Excretory Secretory
Fc	Fraction Crystalline
FPLC	Fast Protein Liquid Chromatography
GD	Gel Diffusion
G	Gram

GPELF	Global Program for Elimination of Lymphatic Filariasis
HIV	Human Immunodeficiency Virus
HRP	Horse Raddish Peroxidase
ICT	Immunochromatographic test
IFAT	Indirect Fluorescent Antibody test
Ig	Immunoglobulin
IHAT	Indirect Haemagglutination test
IL	Interleukin
INF	Interferon
kD	Kilo Dalton
LF	Lymphatic Filariasis
M	Mole
Mab	Monoclonal Antibody
MDA	Mass Drug Administration
mf	Microfilaria
mf S	Microfilarial Soluble
MIF	Migration Inhibitory Factor
ml	Milliliter
MX	Molecular Xeno-Monitoring
NC	Nitrocellulose
NFB	Nucleopore-Filtered Blood
Ng	Nanogram
OD	Optical Density
Og	*Onchocerca gibsoni*