

2003/07/14
2003/09/27

(ELISA)

()

250

-

270

%92.5

.%83.3

225

(20)

:

Preliminary Serodiagnosis study to certify the diagnosis of cutaneous leishmaniasis in Syria

Shaaban M., Hammoud L., Al-Nahhas S.

Department of Animal Biology-Faculty of Sciences-Damascus University

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ABSTRACT

According to the high specificity and sensitivity of ELISA test, we tried in this preliminary study, to certify the usefulness of ELISA test in the detection of specific antibodies (IgG) to cutaneous leishmaniasis(CL) in SYRIA, in order to certify the diagnosis of this disease by using the classic methods (observation microscopic – culture).

Key Words: ELISA test, Cutaneous Leishmaniasis, Antibodies, Microscopic test, Culture.

Leishmaniasis

()
()

12

88

350

L.major

()

(1) *L. tropica*

amastigotes

(4 3 2)

48

24

promastigotes

4 3)

(3)

(6 5

(8 4)

()

DAT

IFA

IB

ELISA

9)

(17

(24 18)

(IgG)

(Optic Density)

:

270

2002

. (4) 2003

Shaaban

:

)

NNN

(

. (4) 2003

Shaaban

48 24

:

)

.(/

(20)

20-

:ELISA

(Leishmaniasis-

IgG-CELISA, CELLABS)

.(23, 21)

()

4

1:100

IgG -

4

(1M)

450

(Digiscan)

Cutoff

OD = 0.2 nm

(Z test for differences in two proportions)

ELISA

) 48-24
 .(8 7 6) ()
 .% 37.8 102 % 62.2 168 270
)
 . 60 -10 ()

NNN
 / (%83.3) 270/225

()
 % 16.7 270/45 .(8 7 6 4)

.(25 4)
)

(
 (26)

(/Th2)

23 22 21 19,20 18)

.(24

ELISA

270

OD = 0.2

20

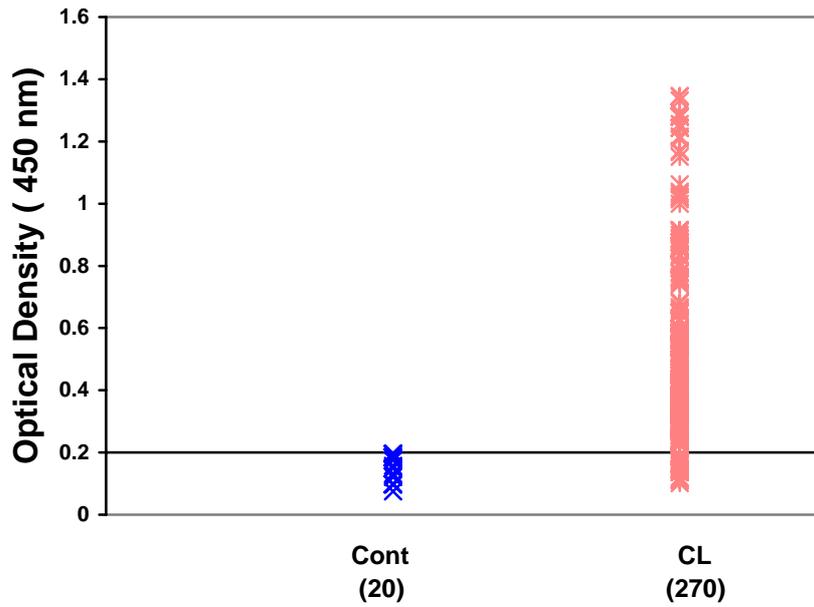
nm

)

0.2

0.2

.(1



20 (CL)

270

(1)

Cut

(Cont)

Off = 0.2 nm

270/250
25

(1)

20

. 0.01

)

(1)

.(Z

	%	±	
0.02	% 62	7 ± 168	
0.02	% 83	6 ± 225	
0.01	% 92.5	4 ± 250	
(+) (+) (+)			
% % %			
9**	30.5**	21**	
P.value = 0.0005	P.value = 0.000	P.value = 0.000	

0.01

**

%100

%100 %92.5

(7)

.(27)

22 21 20)

.(23

OD
:(2)

6 1 (219)
10 31)

:(2) (

%60.7 OD = >0.2 - 0.5 nm : •
.

%64.5

%39.3 OD = >0.5 - 1 ≤ nm : •

%35.5



8

-B



75

-A

(2)

(2)

	OD=>0.5-1≤nm		OD=>0.2-0.5nm		
% 39.3	86	% 60.7	133	219	6-1
% 35.5	11	% 64.5	20	31	6

(180) :
 (70) 5 1
 : (3)
 %76.1 OD = >0.2 - 0.5 nm : •
 %22.8
 %23.9 OD = >0.5 - 1 ≤ nm : •
 %77.1

(3)

	OD=>0.5-1≤nm		OD=>0.2-0.5nm		
% 23.9	43	% 76.1	137	180	5-1
% 77.1	54	% 22.8	16	70	5

(4) 0.01

(4)

OD		
0.104	0.065	
0.089	0.286	P.value
**0.825	-	
0.000		P.value

0.01

**

(8)

Mosleh

100

118 (28)

Ozbilge

)

(

REFERENCES

- 1 World Health Organization. *Leishmania* & HIV in Gridlock. WHO and Joint UN programme, (1998).
- 2 De Brujin MHL. , Labrada LA., Smyth AJ., Santrich C., and Barker DC.
A comparative study of diagnosis by the polymerase chain reaction and by current clinical methods using biopsies from Colombian patients with suspected Leishmaniasis. *Ann. Trop. Med. and Parasitol.* (1993) 44: 201-207.
- 3 Mathis A. and Deplazes P. PCR and in vitro cultivation for detection of *Leishmania spp.* In diagnostic samples from humans and dogs. *J. Clin. Microbiol.* (1995) 33: 1145-1149.
- 4 Shabaan M., Hammoud L., and Nahhas S. Epidemiological of Cutaneous Leishmaniasis of cases from dermatology hospital and general clinic in Damascus. *Damas. Univ. J. Bas. Sci.* (2003)
- 5 Osman O.F., Oskam L., Zijlstra E.E., Kroon N.M., Schoone G.J Khalil E.A.G., El. Hassan A. and Kager P.A. Evaluation of PCR for Diagnosis of Visceral Leishmaniasis. *J. Clin. Microbiol.* (1997) 2454 -2457.
- 6 Edrissian Gh. H., Darabian P., Zovein Z., Seyedi-Rashti M.A. and Nadim A. Application of the indirect fluorescent antibody test in the serodiagnosis of Cutaneous and Visceral Leishmaniasis in Iran . *Ann. Trop. Med. Parasitol.* (1981) 75: 19-24.
- 7 Pappas M. G., McGreevy P.B., Hajkowski R., Hendricks L.D., Oster C.N. and Hockmeyer W. T. Evaluation of promastigote and amastigote antigens in the indirect fluorescent antibody test for American Cutaneous Leishmaniasis. *Am. J. Trop. Med. Hyg.* (1983) 32: 1260-1267.
- 8 Mosleh IM., Saliba EK., AL-Khateeb S., Bisharat Z., Oumeish OY., and Bitar W. Serodiagnosis of Cutaneous Leishmaniasis in Jordan using indirect fluorescent antibody test and the enzyme-linked immunosorbent assay. *Acta tropica* (1995) 59: 163 - 172.
- 9 Ho M. Leeu-Wenburg J. Mbungua G. Wamachi A. and Voller A. An enzyme-linked immunosorbent assay for field diagnosis of Visceral leishmaniasis. *Am. J. Trop. Med. Hyg.* (1983) 32 : 943-6.
- 10 Badaro R. Reed SG. Barral A. Orge G and Jones TC. Evaluation of the micro enzyme-linked immunosorbent assay ELISA for antibodies in American VL : antigen selection for detection of infection specific responses. *Am. J. Trop. Med. Hyg.* (1986) 35: 72-8.

-
- 11 Harith AE, Kolk AHJ, Kager PA, Leeu Wenburg J, Faber FJ, Muigai R, Kiugu S. and Learman J. Evaluation of a newly developed (DAT) of serodiagnosis and sero – epidemiological studies of VL comparison with IFAT and ELISA. *Trans. R. Soc. Trop. Med. Hyg.* (1987) 81:603-606.
 - 12 Ashford DA, Badaro R, Eulalio C, Freire M, Miranda C, Zalis MG. and David JR. Studies on the control of VL: Validation of the Falcon assay screening test-enzyme-linked immunosorbent assay for field diagnosis of canine VL. *Am. J. Trop. Med. Hyg.* (1993) 1-8.
 - 13 Singla N, Singh GS, Sudar S. and Vinayak VK. Evaluation of the DAT as an immunodiagnostic tool for Kala-Azar in India. *Trans. Roy. Soc. Trop. Med. Hyg.* (1993) 276-278.
 - 14 Gupta S, Srivastava JK, Ray S, Chandra F, Srivastava VK. and Katiyar JC. Evaluation of Enzyme linked immunosorbent assay in the diagnosis of Kala-Asar in Malda district (west-Bengal). *Indian J. Med. Res.* (1993) 242-246.
 - 15 Shiddo SA, Aden MA, Huldt G, Loftenius A, Nilson LA, Jonsson J, Ouchterlony O. and Thorstesson R. Visceral leishmaniasis in Somalia. Circulating antibodies as measured by DAT, Immunofluorescence and ELISA. *Trop. Geograph. Med.* (1995) 47: 68-73.
 - 16 Barbosa-de-Deus R., Luí Z dos Mares-Guia M., Zacarias Nunes A., Morais Costa K., Goncalves Junqueira R., Mayrink W., Genaro O., and Pereira Tavares C.A. *Leishmania major*-Like Antigen for specific and sensitive serodiagnosis of Human and Canine Visceral Leishmaniasis. *Clin. Diag. Lab. Immun.* (2002) 6 (9), 1361-1366.
 - 17 Rajasekariah G.R., Ryan J. R., Hillier S.R., Yi L. P., Stiteler J. M., Cui L., Smithyman A.M. and Martin S.K. Optimisation of an ELISA for the serodiagnosis of Visceral Leishmaniasis using in vitro derived promastigote antigens. *J.Immunol. Meth.* (2001) 252: 105-119.
 - 18 Garcia – Miss. M. del R., Andrade – Narvaez F.J. Esquivel- Vinas R.E., Simmonds – Diaz E.R., Canto-Lara S.B. and Cruz- Ruiz A.L. Localized Cutaneous Leishmaniasis (chiclero`s ulcer) in Mexico sensitivity and specificity of ELISA for IgG antibodies to *Leishmania mexicana mexicana*. *Trans. Roy. Soc. Trop. Med. Hyg.* (1990) 84: 356- 358.
 - 19 Kar K. Serodiagnosis of leishmaniasis. *Critical Rev. Microbiol.* (1995) 21: 123-152.
 - 20 Monroy-Ostria A., Sosa-Cabrera T., Rivas-Sanchez B., Ruiz-Tuyu R., Mendoza-Gonzalez A.R. and Favila-Castillo L. Seroepidemiological studies of Cutaneous Leishmaniasis in the Capeche state of Mexico. *Memorias do Instituto Oswaldo Cruz.* (1997) 92: 21-26.

- 21 Valli L.C.P., Passos V.M.M., Dietze R., Callahau HL., Berman JD. and Grogl M. Humoral immune responses among mucosal and Cutaneous Leishmaniasis patients caused by *Leishmania brasiliensis*. J. Parasitol. (1999) 85: 1076-1083.
- 22 Brito M.E.F., Mendonca M.G., Gomes Y.M., Jardim M.L., and Abath F.G.C. Identification of potentially diagnostic *Leishmania brasiliensis* antigen in human Cutaneous Leishmaniasis by immunoblot analysis . Clin. Diag. Lab.Immunol. (2000) 7: 318-321.
- 23 Brito M.E.F., Mendonca M.G., Gomes Y.M., Jardim M.L., and Abath F.G.C. Dynamics of the antibody response in patients with therapeutic or spontaneous cure of American Cutaneous Leishmaniasis. Trans. R. Soc. Trop. Med. Hyg. (2001) 95: 203-206.
- 24 Ryan J.R., Smithyman A.M., Rajasekariah G.H., Hochberg L., Stiteler J.M., and Martin S.K. Enzyme- linked immunosorbent assay based on soluble promastigote antigen detects immunoglobulin M (IgM) and IgG antibodies in sera from cases of Visceral and Cutaneous Leishmaniasis. J. Clin. Microbiol. (2002) 40 (3): 1037-1043.
- 25 Ozbilge H. Ozerol I.H., and Tasci S. Comparison of different techniques in diagnosing Cutaneous Leishmaniasis. Turkish society of parasitology and University of Crete. World Leish.2.Hellenic Pasteur institute (2001).
- 26 Text Book of Pediatrics Nelson . 16: 275-499.
- 27 Chang K.P. and Hendricks LD. Laboratory cultivation and maintenance of *Leishmania*. In K.P. chang and R.S. Bray (Eds). Human parasitic diseases. (1) Leishmaniasis . Elsevier Amesterdam, (1985) 177 – 182.
- 28 Ozbilge H. Ozerol I.H., Ulukanligil M., and Seyrek A. The correlation between the stage of Cutaneous Leishmaniasis and diagnostic methods. Turkish society of parasitology and University of Crete. World Leish.2.Hellenic Pasteur institute (2001).