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Full Length Research Article

Prevalence and Pattern of Lupus Erythematosus Cell Positivity in Diseases in Ile-Ife, Nigeria

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ABSTRACT
The prevalence and pattern of lupus erythematosus (LE) cell positivity in diseases in Ile-Ife, Osun state was carried out between January 1999 and June 2004 (5 ½ years). A total of 96 patients with different diseases were screened for LE cell using standard techniques. Of this number, 63 (65.6%) were females and 33 (34.4%) were males, their age ranges between 2 and 65 years (x 26.5 years). Twelve (12.5%) were positive for LE cell within the period. Forty five (46.9%) were screened between January 1999 and December 2002 (4 years), 4 (4.2%) were positive for LE cell. Fifty one (53.1%) were screened between January 2003 and June 2004 (1½ years), 8 (8.3%) were positive for LE cell. It was observed from the study that the LE cell positivity is on the increase due to increase number of requests especially from renal patients. LE cell positivity is also greater in females 7 (7.3%) than in males 5(5.2%) and occurs more in the second and third decades of life.

Key words:
Lupus erythematosus cell, Prevalence, Ile-Ife, Nigeria, Diseases.

INTRODUCTION

Lupus erythematosus (LE) cell was described by Hargraves *et al* (1948) in the bone marrow preparations of patients with disseminated lupus erythematosus (DSE) and was later shown that the cell can be equally demonstrated in peripheral blood preparations. Although, this cell is characteristic of DSE, it is not invariably present, and its absence does not exclude the diagnosis in a patient with typical clinical features. Harvey (1954) found the cell present in 82 percent of unequivocal cases.

The LE cell consists of a leucocyte, almost invariably a neutrophil, whose cytoplasm contains a large, spherical, opaque, structureless, homogenous body, which stains pale purple with Romanowsky stains. The nucleus of the cell is usually displaced to one side and may appear to be wrapped around the ingested material. The LE cell phenomenon depends on the presence in plasma of an immunologically distinct gamma globulin, the LE factor or antinuclear factors (ANF), which has the characteristics of an antibody of the IgG type (Dacies and Lewis, 2001). This factor has the property of causing in vitro lysis of the nuclei of neutrophils; as it reacts with autologous nuclei, it can be regarded as an autoantibody. The neutrophil whose nucleus has undergone lysis ruptures liberating the lysed nuclear mass, which is then phagocytosed by other neutrophils. The LE factor is an auto-

antibody to deoxyribonucleohistone, and that the formation of the LE cell is initiated by its action on the nucleo-protein nucleus of the cell (Dacies and Lewis, 2001). Formation of the LE cell is a multi-stage process that requires four distinct elements; nuclear substrate, LE factor, phagocytic cell and complement (Stephen et al, 1976). LE cell can be demonstrated in peripheral blood film in a wide range of immune disorders such as systemic lupus erythematosus (SLE) (Eugene et al, 1987), rheumatoid arthritis (RA)(Eugene et al, 1987), nephritis, chronic hepatitis, thyroiditis, Sjogren's Syndrome (Moutsopoulos, 1980), pernicious anaemia, ulcerative colitis, red cell aplasia, mixed connective tissue disease (Sharp and Sengsen , 1985) and in cases of drug reactions (Alarcon–Segovia,1969).

The number of requests (51) received for LE cell test between January 2003 and June 2004 (1 ½ years) was more than twice the number (45) received between January 1999 and December 2002 (4 years). The reason for the sudden upsurge is unknown hence our aim is to study the prevalence and pattern of LE cell positivity in diseases in Ile-Ife.

MATERIALS AND METHODS

SUBJECTS

The patients used for the study were those that were sent for LE cell test from clinics and wards of Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife.

METHOD

Five milliliters of blood were collected by clean venepuncture and placed in a screw capped glass universal bottle containing ten 3mm glass beads, and shaken vigorously for 5 minutes. LE cell test was performed by standard technique (Ramzi et al, 1994).

RESULTS

A total of 96 patients were screened for LE cell between January1999 and June 2004 (5 ½ years). Of this number, females were 63 (65.5%) and males 33 (34.4%), their age ranges between 2 and 65 years (x 26.5 years). The prevalence of LE cell within the study period and per year is as shown in table I, with the lowest (0%) in year 2000 and highest (16%) between January and June 2004.

Table 2 shows the pattern of LE cell positivity in diseases. Of the 96 requests in 10 disease states, 12 (12.5%) were LE cell positive. 6 (35.3%) of 17 patients with nephrotic syndrome were LE cell positive, while 6(15.8%) of 38 patients with suspected SLE were LE cell positive. Of the 6 nephrotic syndrome patients, that were positive for LE cells, 2(33.3%) came in 2003 and the remaining 4(66.7%) came between January and June 2004 (Table 3) while those of SLE were spread between 1999 and 2003.

Table 4 shows distribution of LE cells positivity among the various age groups. The highest, 5 (31.3%) was recorded in the age 11-20 (x 13.3) and the least, 1(5.6%) was in 41 – 50 (x 43.7yr). Distribution of LE cell positivity in diseases with regard to sex is shown in table 5. Out of 63 females with different diseases that reported for LE screening, 7(11.1%) were positive. Of this number 29 were patients suspected of SLE and 5(13.9%) were positive while the remaining 2(10.5%) were from 10 nephrotic syndrome patients. 33 males with different diseases also reported for LE screening, 4 (21.1%) LE positive were from 9 nephrotic syndrome patients while the remaining 1 (2.9%) positive LE was from 7 suspected SLE patients.

TABLE 1:
Prevalence of LE Cell Between January 1999 and June 2004.

	No. of samples	LE cell Positive	%
1999	13	1	7.7
2000	7	-	0%
2001	9	1	11.1
2002	16	2	12.5
2003	26	4	15.4
2004	25	4	16
TOTAL	96	12	

TABLE 2:
Pattern of LE Cells In Diseases

Diseases	No.	Positive	%
SLE	38	6	15.8
Rheumatoid Arthritis	5	0	
Nephrotic Syndrome	17	6	35.3
Mixed Connective Tissue disease	5	-	0
Ankylosing spondylitis	5	-	0
Chronic Hepatitis	6	-	0
Aplastic Anaemia	3	-	0
Skin diseases	9	-	0
Cardiovascular Disease	5	-	0
Sickle cell Disease	3	-	0
TOTAL	**96**	**12**	**12.5**

TABLE 3:
Pattern of LE Cell Positivity in Suspected SLE And Nephrotic Syndrome Between January 1999 And June 2004

	Suspected SLE Patients			Nephrotic Syndrome Patients		
	N0.	Positive	%	N0.	Positive	%
1999	7	1	7.7	-	-	-
2000	3	-	-	1	-	-
2001	2	1	11.1	1	-	-
2002	6	2	12.5	1	-	-
2003	13	2	8.7	5	2	8.7
2004	3	-	-	12	4	16

TABLE 4:
Distribution of LE cells amongst various age groups

Age Range	No. of test Sample	No. of positive samples	%
1 – 10	20	2	10
11 – 20	16	5	31.3
21 – 30	17	3	17.6
31 – 40	13	1	7.7
41 – 50	18	1	5.6
51 – 60	11	-	-
61 – 70	1	-	-
TOTAL	96	12	12.5

DISCUSSION

The positive LE Cell test as currently defined necessitates the presence of at least two classic LE Cells on the slide or one classic LE cell on each of two slides (Stephen et al, 1976; Ramzi et al, 1994). A positive test is almost pathognomonic of lupus especially in patients with typical clinical features (Alarcon–Segovia 1969; Cheesbrough , 2000).

In this study, 96 patients that were screened for LE cell fell within 10 disease states. Thirty eight (39.6%) of them were patients with suspected SLE followed by patients with nephrotic syndrome 17 (17.7%). Six (15.8%) of the 38 suspected SLE were positive for LE cell, this was scattered between 1999 and 2003. Six (35.3%) of the 17 patients with nephritic syndrome were positive for LE cell, 2 (33.3%) in 2003 and the remaining 4 (66.7%) between January and June 2004. No other disease state had positive LE cell.

This result showed gradual increase of LE cell positivity in the two diseases but that of nephrotic syndrome was more significant especially 4 (33.36) out of 12 patients between Jan and June 2004. The reason for this could either be that cases of nephrotic syndrome was on the increase or the test was not utilized in the past years.

It was also observed from the study that LE cell positivity was more common in female (7.1%) than in males (5.1%) and more common in the second and third decades of life. This is in agreement with the findings of Ramzl et al (1994).

In conclusion, it was established from the prevalence and pattern of LE cell positivity that the test had been underutilized in our hospital in the past. It is suggested that LE cell screening should be made a routine in all suspected cases especially in renal diseases. The result of the test will add to the clinical assessment of the patient thereby aiding diagnosis.

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