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LIVER ENZYMES IN NIGERIANS WITH LICHEN PLANUS

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ABSTRACT
Introduction: Lichen planus has been reported in association with liver diseases. Clinical signs such as jaundice may not be reliable indicator of ongoing inflammation or the presence of an ongoing liver disease. Liver function test in spite of its variability may serve as a more reliable indicator of liver disease. The objective of this study is to assess the discriminant power of liver enzymes with lichen planus and control.

Methods: Sixty Nigerians with lichen planus (LP group) and 30 patients with other dermatoses control group A) and 30 apparently normal individual (control group B) had their liver enzymes assayed using the automated Hitachi 70 auto-analyzer

Result: There was no a statistically significant difference in the level of liver enzymes between the LP group and controls

Conclusion: Liver enzymes in Nigerian with lichen planus are generally within normal limits and are comparable to individuals without lichen planus.

Key Words: Lichen planus, Liver enzymes, Nigerian (*Accepted 1 February 2007*)

INTRODUCTION
The search for the aetiopathogenesis of lichen planus (LP) and research into the extra hepatic manifestations of the hepatrophic viruses has indicated a relationship between liver diseases and lichen planus[1]. Cross reactivity or molecular mimicry between the hepatocytes and keratinocytes may be the link between the skin and the liver[2]. Liver diseases that have been reported in association with lichen planus include autoimmune chronic active hepatitis, primary biliary cirrhosis, and primary sclerosing cholangitis. Others are Wilson's disease and haemochromatosis[1].
The presence of jaundice as an indicator of an ongoing inflammation in the liver has been found to be very unreliable[4]. For example only 10% who are suffering from hepatitis develop jaundice. Even though a sub-clinical inflammation of the liver may go unnoticed in majority of individuals, the ultimate sequele might be fatal and often irreversible. Liver function test is a relatively available, affordable none invasive procedure in Nigeria. Lichen planus on the other hand is a common dermatosis with unique undisputable clinical features. We therefore assessed the discriminant power of liver enzymes between lichen planus and controls.

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MATERIALS AND METHODS
Sixty patients with cutaneous lichen planus were studied. Thirty patients with hepatitis unrelated dermatoses (control group A) and another 30 apparently healthy individuals (control group B) were recruited into the study as 2 separate control groups. None of the subject had symptoms of ongoing hepatitis. Based on the extent of their lesions, patients with lichen planus were categorised into 3 subgroups (Generalised, localised to the extremities and localised)
Clinical examination was carried out in all subjects to determine the presence of hepatomegaly. . Patients with peripheral stigmata of chronic liver disease were also excluded.
Ten millimetres of venous blood was collected from all subjects and controls by antecubital venepuncture. Sera were collected by centrifugation at 400 rpm and stored at 20 degree centigrade till seroanalysis. Seroanalysis was done using the Hitachi 70 autoanalyzer to determine the levels alkaline phosphatase, alanine aminotransaminase and aspartate aminotransaminase, serum proteins [Total and Albumin]. Values of liver enzymes were compared within the subgroup of lichen planus subjects and between lichen planus subjects an the control groups
Ethical approval for this study was obtained from the

joint University College Hospital and University of Ibadan Ethical Committee.

RESULTS

Biodata. The mean age of patients with lichen planus was 37.13 ± 12.8 years with the range of 10 68 years while the mean age of control group A was 35.33 ± 13.67 years with ages ranging from 13-64 years. In control group B, the mean age was 34.41 ± 11.69 years with ages ranging from 12 to 57 years. Of the 60 patients with lichen planus 25 were males and 35 female. No patients had hepatomegaly on clincal examination ***Liver enzymes.*** The summary of the results of liver function test in all subjects (lichen planus and control groups) is shown in Table 1. The mean values of these parameters in subjects were within normal limits. The differences observed between the groups were not statistically significant (P >0.05). The liver function tests of patients with lichen planus is shown Table2. The mean values were within normal limits and also the differences observed between subgroups were not statistically significant (P >0.05).

Alkaline phosphatase. Among patients with lichen planus, 7 had elevated alkaline phosphates above upper limits of normal with values ranging from 252 622 IU/L. The highest value of 622IU/L was obtained in 50-year-old woman with lichen planus. Three patients in control group A had elevated alkaline phosphates values ranging from 262 393IU/L. In control group B, the 3 subjects with elevated alkaline phosphates were 16 years and less in age.

Aspartate amin transaminases Values of AST were elevated in 3 patients with lichen planus above the upper limit of normal, these were 50 IU/L, 64 IU/L and 100 IU/L with a mean of 71.3 IU/L. Values of AST in subjects in control group A were all within normal limit except for a value of 43 IU/L obtained in one. The value of AST in control group B were all within normal limit but for a value of 77IU/L obtained in one control.

The reference values of the liver function tests parameters are as follow: Alkaline Phosphatase 0-250IU\L; AST 0-40IU\L; ALT 0-40IU\L; Total protein 5-8g\dl; Albumin 3-5g\dl.

Table 1:**Liver Function Test In All Subjects**

		SUBJECT GROUPS				
Test	Statistics L P	GP A n=60	GP B n=30	F value n=30	P value	
ALK PH	Mean	181.68	168.03	169.97		
	S. D.	110.18	74.2	112.44	0.23	0.8
	Range	73- 622	60 -393	69 -566		
AST	Mean	26.83	27.17	28.90		
	S. D.	14.99	10.21	12.94	0.24	0.79
	Range	11 100	7 65	15 - 71		
ALT	Mean	6.8	13.83	15.13		
	S. D.	13.78	7.82	9.4 1	0.70	0.5
	Range	4 90	3 40	6 51		
T Protein	Mean	7.74	7.66	7.39		
	S. D.	0.6	1.13	1.11	1.52	0.22
	Range	5.8 9	3.1- 8.8	4.1 - 8.3		
Albumin	Mean	4.75	4.63	4.97		
	S. D.	0.4	0.85	0.85	2.08	0.13
	Range	3.6 - 5.6	1.6 - 5...5	3- 6.1		

ALK PH(alkaline phosphatase) AST(aspartate amin transaminases) ALT (aminotransaminase)

Table 2:**Comparison Of Liver Function Test And The Extent Of Lesion In Lichen Planus Patients**

		SUBJECT GROUPS				
Laboratory Test	Statistics	Gen n=25	LE n=25	L n=10	F value	P value
ALK PH	Mean	173.68	194.64	169.3	0.3	0.74
	S. D.	.33	147.90	52.78		
	Range	80 - 403	73 - 622	103 - 272		
AST	Mean	26.5	24.4	33.5	2.12	0.13
	S. D.	9.7	10.4	29.4		
	Range	13- 50	14- 64	11- 100		
ALT	Mean	7.92	12.96	23.6	2.38	0.10
	S. D.	13.29	5.64	24.35		
	Range	4 - 56	5- 29	4- 90		
T Protein	Mean	7.64	7.78	7.86	0.56	0.58
	S. D.	0.67	0.55	0.51		
	Range	5.8- 9	6.6 - 8.8	7.3- 8.9		
Albumin	Mean	4.68	4.79	4.83	0.68	0.57
	S. D.	0.45	0.36	0.36		
	Range	3.6 -5.6	4.0 -5.4	4.1- 5.4		

Key
Gen (Generalized) LE (Localized to extremities) L (Localized)
ALK PH (alkaline phosphatase) AST(aspartate amintransaminases) ALT (aminotransaminase)

DISCUSSION

The association of liver diseases with lichen planus have been documented in literature. These associations may not be as widely reported as the relationship of lichen planus with Hepatitis B and C viruses[4-8], no doubt they underscore the importance of assessing the status of the liver in patients with lichen planus. Since this may reveal a clinically concealed disease in the liver. The relationship between an apparently benign cutaneous disease such as lichen planus and an ultimately fatal disease of a vital organ such as the liver are thought to be due to altered keratinocytes antigenicity, which might induce a reaction that damages the keratinocytes and also the hepatocytes[2]. Other postulation adduced for this that has been supported by some report is that the keratinocytes may share certain epitopes with antigens like HBV which can induce immunologic damage of the liver. To an African patient and healthcare worker the above scientific postulation may not be as important as the possible relationship between the lichen planus and the liver, since diseases of the skin in this instance lichen planus may serve as first line screening tools for patients who may be suffering from presymptomatic liver disease. In the absence of signs of an apparent liver disease such as jaundice and massive hepatomegaly, convincing Nigeria patients of the need to undergo detailed evaluation of the liver with ultrasonography and radioimaging is very difficult let a lone a request for a liver biopsy. Reasons for this are the cost of investigations and fear of undergoing any invasive procedure particularly if the reason is not very obvious[9]. Liver function test a relatively none invasive procedure and a more reliable indicator of an on going inflammation can be easily done.In this study, there was no statistically significant difference in values of liver enzymes between patients with lichen planus and the controls. However, we found 7(11.6%) of the patients with lichen planus with elevated alkaline phosphatase and 3(0.05%) had mildly elevated aspartate transaminases. Mildly elevated levels of AST has been reported in patients taking erythromycin and this cannot be ruled out in our patients because of easy access to controlled drugs [10]. The elevations in the level of alkaline phosphates were minimal and cannot be said to indicate an ongoing liver disease since slightly elevated levels has been reported as a common finding. The highest value of 622IU/L a 2-fold increase of the upper limit of the normal value in this centre was in a 50-year-old woman; this value is not unusual in menopausal women where serum alkaline phosphatase may be derived from the bones[11]. Measuring the fractionated levels of alkaline phosphatase, which is not available in this centre, would have helped in differentiating an extra hepatic sources[12].

The findings in this study is consistent with that by Katz and Pisanti, who in their study of the

relationship between oral erosive lichen planus and chronic active hepatitis did not find any abnormality in the liver function test of their patients[13]. Imhof and colleagues in their study of patients with lichen planus could not demonstrate any abnormalities in their liver function test. Mignogna and Dupin in their separate studies were among other workers who did not find any in LFT of patients with lichen planus when compared to controls[14]. Korkij and colleague however reported abnormal liver functions in 52% of their patients while 36% of controls had abnormal liver function[15]. However, the presence of elevated liver enzymes may help in identifying the cohort that requires close monitoring to pick early those who may be incubating an ominous disease of the liver.

Conclusion

Levels of liver enzymes in Nigerians with lichen planus are generally within normal limits and are comparable to individuals without lichen planus. However elevated level of alkaline phoshatase found in few patients though may be a usual finding may serve as indictor of selecting those that require close monitoring and follow up.

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