Journal of Pain & Relief
ISSN: 2167-0846
Research Article Open Access

Changing Trends of Liver Diseases in Benin City, A Twenty (1985-2004) Years Comparative Histopathology Study

Nnadi IG[1]* and Obaseki DE[2]

[1]*Federal Medical Centre Owerri, Imo State, Nigeria.*
[2]*University of Benin Teaching Hospital Benin City, Edo State, Nigeria.*

Abstract

Aim: The aim of this study is to determine the pattern chronic liver diseases histologically diagnosed in the University of Benin Teaching Hospital between 1985and 2004 and compare with previous study of histopathological diseases of the liver in a previous study.

Methodology: The surgical daybooks, histopathology request and report forms were the sources of data used for this study. All liver biopsies received at the Department of Pathology, University of Benin Teaching Hospital, Benin City, Edo State, Nigeria, from January 1985 to December 2004were reviewed.

Results: A total of 235 liver biopsies were received in the Department of Histopathology, University of Benin Teaching Hospital, Benin City during the period under review. The commonest hepatic disease was viral hepatitis 78 cases (33.19%). Followed byhepatocellular carcinoma 59 cases (25.10%), 33 cases (14.04%) of cirrhosis, 26 cases of metastatic tumors to the liver (11.06%), five cases (2.13%) of primary biliary cirrhosis, four cases (1.70%) of alcoholic liver disease, three cases (1.28%) of neonatal hepatitis, hepatoblastoma, fatty change and Non-Hodgkin lymphoma respectively; two cases (0.85%) of cholangiocarcinoma, haemangioendothelioma, sarcoidosis, and neonatal giant cell hepatitis respectively and one case (0.43%) each of glycogen storage disorder, extrahepatic biliary atresia, fulminant hepatitis, hepatic abscess, congenital hepatic fibrosis, polycystic hepatic disease, cavernous haemangioma and hepatic cholestasis.

Conclusion: The predominant liver diseases were inflammatory diseases(50.22%), malignant neoplasm(40.42%), biliary tract disorders (2.99%) and metabolic disorders (2.56%).

Keywords: Chronic; Hepatitis; Liver; Abscess; Biliary tract disorders; Autoimmune diseases

Introduction

The liver is an important organ in the body and serves several metabolic functions. Several pathologic conditions affect the liver; these include infective diseases especially viral hepatitis, autoimmune diseases, circulatory and metabolic disorders, intra-hepatic biliary tract disorders, diseases associated with pregnancies and toxins as well as both primary and secondary malignancies [1].

The aim of this study is to compare the patterns of chronic liver diseases histologically diagnosed in the University of Benin Teaching Hospital (UBTH) within 1985-2004 to 2005-2011.

Materials and method

This is a retrospective histopathology study. The study area, Benin City, is the capital of Edo State. It is located in the south-south geopolitical zone of Nigeria with a population of 1,147,188. Edo state has a population of 3, 233,366 [2,3].

Methodology

Liver biopsies received and diagnosed histologically at the department of Pathology, University of Benin Teaching Hospital (UBTH), Benin City, Nigeria over 25 years (between January 1, 1985 and December 31, 2004) were used for this study. The surgical day books of the Department of Pathology, University of Benin Teaching Hospital, Benin City were reviewed and the demographic parameter of the patients were obtained. The Haematoxylin and Eosin (H&E) stained slides of the histologically diagnosed hepatic diseases were reviewed and classified. The formalin fixed paraffin embedded (FFPE) tissue blocks were selected and sectioned with microtome to produce fresh sections (3-4μ) on lysine coated slides, de-paraffinized with xylene, rehydrated in graded alcohol and stained with H&E in cases where the slides were broken or missing. Those liver biopsies which did not meet the inclusion criteria were excluded from the study.

Results

A total of 235 liver biopsies were received in the Department of Histopathology, University of Benin Teaching Hospital, Benin City during the period (1985-2004) under review. The mean age was 41.3 ±16.3 years with a range of 3months to 87 years. The male to female ratio was 2.8:1. The liver diseases were classified into inflammatory, tumours, tumour-like conditions, biliary diseases, drugs and chemicals, metabolic diseases, and granulomatous lesions (Table 1). The commonest hepatic disease in the period under review was viral hepatitis which constituted 78 cases (33.19%) of all hepatic lesions, followed by hepatocellular carcinoma which accounted for 59 cases (25.10%). These were followed by 33 cases (14.04%) of cirrhosis, 26 cases of metastatic tumors to the liver (11.06%), five cases (2.13%) of primary biliary cirrhosis, four cases (1.70%) of alcoholic liver disease, three cases (1.28%) of neonatal hepatitis, hepatoblastoma, fatty change and Non-Hodgkin lymphoma respectively, two cases (0.85%) of cholangiocarcinoma, haemangioendothelioma, sarcoidosis, and

***Corresponding author:** Nnadi IG, Federal Medical Centre Owerri, Imo State, Nigeria, Tel: 08038147448, Email: godheniknnd@yahoo.com

Received September 11, 2020; **Accepted** September 27, 2020; **Published** October 05, 2020

Citation: Nnadi IG, Obaseki DE (2020) Changing Trends of Liver Diseases in Benin City, A Twenty (1985-2004)Years Comparative Histopathology Study. J Pain Relief 358.

neonatal giant cell hepatitis respectively. Others were one case (0.43%) of glycogen storage disorder, extrahepatic biliary atresia, fulminant hepatitis, hepatic abscess, congenital hepatic fibrosis, polycystic hepatic disease, cavernous haemangioma and hepatic cholestasis (Table 2).

S/N	CLASSIFICATION	NO OF CASES	%	Subtotal
1.	**INFLAMMATORY DISEASES**			
i	Viral hepatitis	78	33.19	
ii	Hepatic cirrhosis	33	14.04	
iii	Neonatal hepatitis	3	1.28	
iv	Neonatal giant cell hepatitis	2	0.85	
V	Fulminant hepatitis	1	0.43	
Vi	Liver Abscess	1	0.43	50.22
2.	**TUMOURS**			
i	Hepatocellular carcinoma	59	25.10	
ii	Metastatic tumours	26	11.06	
iii	Hepatoblastoma	3	1.28	
iv	Non-Hodgkin's Lymphoma	3	1.28	
V	Cholangiocarcinoma	2	0.85	
vi	Hemangioendothelioma	2	0.85	40.42
3.	**TUMOUR-LIKE CONDITIONS**			
i	Carvenous hemangioma	1	0.43	
ii	Polycystic liver disease	1	0.43	
iii	Congenital fibrosis	1	0.43	1.29
4.	**BILIARY DISEASES**			
i	Biliary cirrhosis	5	2.13	
ii	Hepatic cholestasis	1	0.43	
iii	Extrahepatic biliary atresia	1	0.43	2.99
5.	**DRUGS AND CHEMICALS**			
i	Alcoholic liver disease	4	1.72	1.72
6.	**METABOLIC DISEASES**			
i	Glycogen storage disease	3	1.28	
ii	Fatty change	3	1.28	2.56
7.	**GRANULOMATOUS LESIONS**			
i	Sarcoidosis	2	0.86	0.86
	Total	235	100	100

Table 1: Relative Frequency of Chronic Liver Diseases.

S/n	**Age grp**	**Freq**	%
1	0-10	16	6.81
2	11-20	11	4.68
3	21-30	32	13.62
4	31-40	48	20.42
5	41-50	51	21.77
6	51-60	43	18.27
7	61-70	26	11.04
8	71-80	7	2.96
9	81-90	1	0.43
Total		235	100

Table 2: Showing the distribution of liver diseases among all the age groups.

Title	Period	M:F	Mean age	Peak age	Age range	Inflam	Neoplasm	Cirrho	Alc liver disease	Steat
Ugiagbe et al.[29]	2005-2011	1.7:1	38.4±13.3	29-39	4mths-69yrs	63.8%	22.5%	6.3%	5.0%	2.5%
Nnadi et al.*	1986-2010	2.8:1	41.3±16.3	40-50	3mths-87yrs	50.22%	40.42%	14.04%	1.7%	1.28%

Table 3: Compares the studies in patterns of liver diseases in Benin City conducted by Ugiagbe and Nnadi et al.

Discussion

A total of 235 liver biopsies were received in the Department of Pathology, UBTH in the period under review. The mean age was41.3 ±16.3 years with age range of 3months to 87 years. The male to female ratio is 2.8:1. These observations agree with reports from Jos, Brasil and India [4-6]. However lower gender ratios were reported in Lagos, Pakistan and Kingdom of Saudi Arabia (KSA) [7-9]

In our study, the commonest pathological lesions was inflammatory (49.79%), followed by tumours (40.42%). Others were biliary diseases (2.99%), metabolic diseases (2.56%),drugs and chemicals (1.7%),tumour-like conditions (1.29%) and granulomatous lesions(0.85%). Among the inflammatory diseases, viral hepatitis (33.19%) was the commonest histopathologic lesion of the liver in our environment, followed consecutively by hepatic cirrhosis (14.04%), neonatal hepatitis (1.28%), neonatal giant cell hepatitis(0.85%) and fulminant hepatitis (0.43%). These observations were similar to the reports from Jos, Kano, India, Pakistan, Kingdom of Saudi Arabia, and Kuwait [10-12] [4,6].

In this study, hepatocellular carcinoma was the most prevalent malignant tumor of the liver and constituted 62.1% of all the malignant neoplasm, this was followed by metastatic tumors (27.36%).This agreed with previous reports [4,8,10]. However, hepatocellular carcinoma was the leading hepatic neoplasm in Lagos and Enugu [13,14,8]. Other studies demonstrated that hepatocellular carcinoma was the 3rd commonest chronic liver disease in KSA and Kuwait [10,12] but very rare in Nottingham, UK where Non-alcoholic steatohepatitis, fatty liver disease and hepatic fibrosis were the leading causes of liver diseases [15]. Other malignancies of liver in this study were hepatoblastoma and non-Hodgkin's lymphoma (1.28% respectively). Hepatoblastoma was very rare in this study constituting 0.85%. This observation was similar to reports from Jos, Lagos, Pakistan, KSA and Zaria [5,8,10,11]. Non-Hodgkin's lymphoma accounted for 1.28% in our study. Similarly, Fashir et al [10] reported that 0.44 per cent of liver diseases in KSA were non-Hodgkin's lymphoma. Other neoplasm in our study included Cholangiocarcinoma and hemangioendothelioma which constituted 0.85% respectively. Though hemangioendothelioma remained markedly rare in some previous studies [16-18]. However, several reports demonstrated hepatic hemangioendothelioma can occur in both children and adults [19-21]. Moreover, collision tumor, a very rare type of cholangiocarcinoma co-existing with hepatocellular carcinoma was reported by Innocent et al [22] in Jos, Nigeria. Metastatic liver neoplasm contributed 11.06%, this is not surprising as the portal system of veins drains gastrointestinal system and other organs distal to the liver. Most of these secondary tumours were adenocarcinomas (76.9%), followed by Squamous cell carcinoma (11.5%), renal cell carcinoma (7.7%) and malignant mesenchymal tumors (3.8%). These findings were relatively high compared to reports from other parts of Nigeria and beyond. For instance, there was 2.6% and 4.5%, 4.0%, 4.6% and 4.3% of metastatic tumours to the liver in Jos, Ethiopia, Pakistan and KSA respectively [5,9,10,11]. Carvenous hemangioma, polycystic liver disease and congenital fibrosis accounted for 0.43% each.

Biliary tract diseases constituted 2.99% of the liver diseases in our study. Biliary cirrhosis was the leading cause of biliary tract lesions and contributed 2.13%. This observation was twice the incidence of biliary cirrhosis in Jos, North-central Nigeria. However, Shelly et al [15] made similar observation in Nottingham where biliary tract lesions constituted 2.0%.Hepatic cholestatisis and extrahepatic biliary atresia accounted for 0.43% each in this study. This was much less than reports from Kano, and KSA where hepatic cholestasis constituted 5.7% and 2.7% respectively [10,11]. In our series, alcoholic liver disease constituted 1.7% compared to other observations in KSA (0.44%) and Nottingham (2.8%) [10,15].

Metabolic diseases such as glycogen storage disease and fatty change contributed 1.28% each. Glycogen storage disease and fatty change are rare in our environment. This agreed with reports from Kano, lagos and Jos [5,8,11]. However, reports from Middle East, Asia and Europe indicate that hepatic steatosis constituted 26.9%, 12.0%, 32.0%, 38.5% in India, KSA, Nottingham, and Pakistan respectively [7,10,15,23].

Granuloma of the liver represent an end point of a spectrum of insults, including infections, drug reaction, and other idiopathic causes. Its incidence varies by geographical location and association with other co-morbid conditions like autoimmunity and immunosuppression [24]. The granulomatous lesion in this study was a single case (0.43%) of sarcoidosis. Similar reports were made from Jos, Pakistan, Nottingham and Ethiopia [5,9,15,23]. However in Ibadan, Southwest Nigeria Ogunbiyi et al [25] reported that hepatic granuloma due to infections and infestations constituted 23.1% while those due to idiopathic etiology make up 26%. Similar observations demonstrated that hepatic granuloma in developing countries were usually due to infections especially disseminated Mycobacterial Tuberculosis unlike in the western world [26,27].

Finally, a seven years (2005-2011) study of the pattern of hepatic diseases in the same health facility (UBTH Benin City) demonstrated differences in observations made in this study. Ugiagbe et al reported that the male to female ratio was 1.7:1; illustrating that there was a surge in the chronic liver diseases in females compared to the preceding twenty years and a downward shift of the peak age from 5th decade in our study to 4th in the recent years. They also observed a remarkable drop in the incidence of hepatic malignancy and cirrhosis despite an increase in chronic viral hepatitis. Table 3compares the observations made in our study (1985-2004) to that of Ugiagbe et al. These observations can be explained by several factors especially the increase in the number of Pathologists in UBTH, increased educational status of the population and marked improvement in the healthcare seeking behaviors of the people. These studies also corroborated the paucity of Non-alcoholic liver diseases in our environment compared to the observations in developed countries [15]. (Table-3).

Conclusion

The liver is complex organ which plays central roles in the metabolism and immunity. This research illustrated the importance of follow up studies to elucidate the dramatic shift in the disease affecting our population and the dynamic changes this would demand on our healthcare facilities and professionals

Acknowledgement

We sincere thank all the Consultant Pathologists, Secretaries and laboratory staff of the Department of Pathology, University of Benin Teaching Hospital for their roles in making this study a success.

Ethical approval

The ethical approval for this study was sort from the Research ethics committee, University of Benin Teaching Hospital Benin City, Edo State, Nigeria.

References

1. Crawford JM. (2011). Liver and Biliary tract, in Kumar V, Abbas AK and Fausto N (eds):Robbins and Cotran, Pathologic Basis of Diseases 8th Ed. WB Sauders Co. Philadelphia. 878-953
2. Federal Government of Nigeria (2007). Legal notice on publication of details of the breakdown of the National and State Provisional Totals 2006 Census. Federal Republic of Nigeria Official Gazette.; 94(24):B183.

3. Echejoh GO, Tanko NM, Manasseh AN, Mandong BM, Ogala-Echejoh SE. et al. (2007) Clinico-pathological correlation of liver biopsy in Jos, central Nigeria. JCCM.; 10 (2):10-17

4. Fassio E, Diaz S, Santa C, Reig ME, Artola YM. et al. (2010). Etiology of Hepatocellular carcinoma in Latin America: a prospective, multicentre, international study. Ann Hepatol. 9(1):63-69.

5. Thamil SR, Selvam V, Subramaniam P.M. (2012). Common silent liver disease in and around of Salem population: an autopsy study. JCDR. 6:207-210

6. Abdulkareem FB, Banjo AAF, Elesha SO, Daramola AO. (2006). Histopathological study of liver diseases at the Lagos University Teaching Hospital, Nigeria (1989-2000). Niger Postgrad Med J. 13(1): 41-6.

7. Khokhar N. (2002). Spectrum of Chronic Liver Disease in a Tertiary Care Hospital. JPMA. 52:56.

8. Fashir B, Sivasubramaniam V, Al Momen S, Assaf H. (1996). Pattern of liver disease in a Saudi patient population: A decade of experience at security forces hospital, Riyadh, KSA. Saudi J Gastroenterol. 2:50-2.

9. Samaila AA, Mohammed AZ, Borodo MM, Tijjani BM. (2008). Histopathological Findings In Liver Biopsies And Clinical Correlation At Kano, Nigeria. Sahel Med J. 11 (1): 20-23.

10. Fekade D. (1989). Histopathological features of liver disease in hospitalized Ethiopian patients. Ethiop Med J. 27(1):9-13.

11. Al AMS, Ali SM. (1984). Patterns of chronic liver disease in Kuwait with special reference to localisation of hepatitis Bsurface antigen. J Clin Pathol. 37:549-554.

12. Osuafor TO, Ikerionwu SE, Ukabam SO. (1986). Liver biopsy: experience at Enugu, eastern Nigeria.Scand J Gastroenterol Suppl. 124:107-12.

13. Nwokediuko SC, Osuala PC, Uduma UV, Alaneme AK, Onwuka CC, et al. (2013). Pattern of liver disease admissions in a Nigerian tertiary hospital. Niger J Clin Pract 16:339-42.

14. Jan L, Samuele I. (2018). Vascular tumours of the liver: a particular story. Transl Gastroenterol Hepatol 3:62

15. Keum H, Choiand W, Moon S. (2013). Epithelioid hemangioendothelioma of the liver.Clin Mol Hepatol. 19(3): 315–319.

16. Piotr R, Ewa S, Piotr K, Beata G, Krzysztof D, et al. (2014). Epithelioid hemangioendothelioma of the liver as a rare indication for liver transplantation. World J Gastroenterol. 20(32): 11333–11339.

17. Chirdan LB, Uba AF, Bode-Thomas F, Mandong BM. (2004). Infantile hepatic haemangioendothelioma: a case report. Niger J Surg Res. 6(2): 69 – 70

18. Adeleye DO, Olukayode AA, Cathyln A, Stephen OO, Ademola IS. (2017). Hepatic epithelioid hemangioendothelioma in a young Nigerian presenting with massive hemorrhage: A case report and review of the literature. West Afri J Radiol. 24(2): 167-170

19. Nyaku FT, Dabkana TM, Nggada HA, Njem JM, Bwala ST. et al. (2019). Epithelioid haemengioendothelioma: A report of two cases. Ann Trop Pathol. 10(1): 77-80

20. Innocent E , Adam C, Mosugu O, Okwudire-Ejeh I , Nansok T. et al. (2017). Collision tumour: A case report of mixed hepatocellular and cholangiocarcinoma. Jos J Med. 11(1):47-50

21. Skelly MM, James PD, Ryder SD. (2001). Findings on liver biopsy to investigate abnormal liver function tests in the absence of diagnostic serology. J Hepatol. 35: 195-9.

22. Khokhar N, Mushtaq M, Mukhtar AS, Ilahi F. (2004). Steatosis and Chronic Hepatitis C Virus Infection. JPMA. 54:110.

23. Ogunbiyi JO. (1999). Hepatic Granulomas InNigeria: What Aetiological Factors Do We Consider? Niger Q J Hosp Med. 9 (3):193-7.

24. Amarapurkar DN, Patel ND, Amarapurkar AD. (2008). Hepatobiliary tuberculosis in western India. Indian J Pathol Microbiol. 51:175-81.

25. Vaideeswar P, Gupta R. (2008). Isolated giant tuberculoma of the liver. Indian J Pathol Microbiol. 51:440-1.

26. McCluggage WG, Sloan JM. (1994). Hepatic granulomas in Northern Ireland: a thirteen year review. Histopathology. 25(3):219-28.

27. Ugiagbe EE, Udoh MO. (2013). The histopathological pattern of liver biopsies at the University of Benin Teaching Hospital. Niger J Clin Pract. 16:526-9.