ALCOHOLIC LIVER DISEASE IN A PSYCHIATRIC HOSPITAL

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SUMMARY

Liver biopsy was analysed for 41 alcoholics, satisfying RDC criteria. Alcoholic liver disease was diagnosed as per the guidelines from the WHO/ICMR Workshop. For the entire group mean consumption of alcohol was 183.1 g of ethanol for an average of 9.7 years. Only 5 persons (12.2%) had normal liver. Six persons (14.6%) had fatty liver, 23 (56.1%) had alcoholic hepatitis, and 4 (9.7%) had precirrhosis and cirrhosis. Biochemical analysis showed that alcoholics had elevated values of SGOT, SGPT and GGT as compared to control non-drinker population. Malnutrition did not appear to be a contaminating factor for the observed histopathological findings.

The toxic effects of ethanol are manifested by lesions involving various organs viz. liver, pancreas, stomach, heart and brain. The diagnosis of alcoholism though clinical is often handicapped with the problem of inadequate or unreliable history. In such a situation evidence of tissue damage can be an aid to the diagnosis. However, only a few of heavy drinkers manifest these lesions clinically. Such is the alcoholic liver disease (ALD), that the damage is evidenced only after the biopsy. Hence liver biopsy is imperative when alcoholism is suspected (Pimstone & French 1984). Subsequent biopsies are also recommended to document progression of ALD.

There are evidences to suggest that a modest correlation exists between the degree of liver damage and clinical factors like amount of consumption, years of use, etc. After an extensive review, Lelbach (1974) commented that a healthy individual weighing 70 Kg would have 50% chance of developing cirrhosis with regular alcohol consumption of 210 g. of ethanol over a span of 20 years. In a later article, he defined an alcoholic as a person with a daily consumption of 160 gm of ethanol over 10 years (Lelbach 1975).

Extensive information on ALD is available from the West. However there is paucity of similar data from India. Various Indian studies between 1933 – 1975 show that alcoholics accounted for 0% – 66% (a cumulative mean of 16.2%) of the cases of cirrhosis (Bhagwat and Islam 1980). Their own series of 26 autopsies of chronic alcoholics established an unequivocal diagnosis of ALD in 8(30%) cases and 3 (11.5%) had cirrhosis attributable to alcohol (Bhagwat and Islam, 1980). The data on ALD from Gastroenterology/Internal medicine departments are limited and seldom prospective. To the best of our knowledge, no information is available on this disease spectrum among alcoholics in a psychiatric hospital.
hospital. Hence this study was undertaken. This is a part of a prospective multidisciplinary study undertaken at our Institute for the purpose of diagnosis, assessment and management of alcohol dependent individuals.

**Material and Methods**

Liver biopsy (needle) was done under local anaesthesia after ascertaining normal haemostatic mechanism. All the patients were included with informed consent and satisfied RDC diagnosis of Alcoholism (Spitzer et al 1978). Out of 63 participating individuals 11 persons did not give their consent for liver biopsy and the procedure could not be done among an additional 6 persons because of persistent abnormal coagulogram. Altogether biopsy was possible among 46 male alcoholics in one year (1984 – 85), however, in five instances the biopsied material was inadequate and hence deleted from this report. In addition, two patients had their biopsy repeated after one year during follow up for reassessment. Information regarding clinical aspects of alcohol use was obtained in great details with the help of a proforma. Blood for biochemical tests was collected from these patients within 24 – 48 hours of admission. Blood samples were also collected from 52 male, non-alcoholic, physically healthy individuals (controls) attending our hospital.

All the biopsy sections were routinely stained with H & E, reticulin, PAS and Masson’s trichrome. The criteria for ALD was adopted as per the guidelines from WHO/ICMR workshop (1981).

**Results**

The pathological lesions noted in ALD are (a) alcoholic fatty change (AF) (b) alcoholic hepatitis (AH) (c) alcoholic lipofibrosis/alcoholic precirrhosis (APC) and (d) alcoholic cirrhosis (AC). Three (7.3%) of our patients revealed features of non-alcoholic hepatitis by the criteria employed and hence labelled as non specific reactive hepatitis. Five (12.2%) of our patients had normal liver. No statistical test was possible due to the small size of some of the groups. Clinical background variables are shown in (Table 1). The mean consumption of the group as a whole (N = 41) was 183.1 ± 100.9 gm of ethanol and the duration of this heavy drinking was 9.7 ± 7.9 year. However,

| Clinical Parameter                                      | Normal liver (N = 5) | Alcoholic Fatty changes (N = 6) | Alcoholic Hepatitis (N = 23) | Alcoholic Pre-Cirrhosis (N = 3) | Alcoholic Cirrhosis (N = 1) | Non specific Hepatitis (N = 3) |
|--------------------------------------------------------|----------------------|--------------------------------|-----------------------------|-------------------------------|-----------------------------|-------------------------------|
| Age (years)                                            | 36.2 ± 6.5           | 43.8 ± 12.4                    | 40.8 ± 7.1                  | 35-48                         | 34                          | 28-37                         |
| Years of heavy drinking                                | 8.4 ± 3.8            | 8.3 ± 7.8                      | 11.5 ± 9.2                  | 2-14                          | 6                           | 2-10                          |
| Consumption (gm. of Ethanol)                           |                      |                                |                             |                               |                             |                               |
| Last Month                                             | 217 ± 119.7          | 159.8 ± 107.9                  | 187.2 ± 105.6               | 117.7-248.9                   | 213.6                       | 28-252                        |
| Last drink before biopsy (days)                        | 27.6 ± 11.6          | 19.1 ± 6.9                     | 19.4 ± 10                   | 12-34                         | 26                          | 9-25                          |
| Persons with recent history of jaundice (No. of persons)| 1                    | 0                              | 2                           | 0                             | 0                           | 0                             |
| Presence of Hepatomegaly (No. of persons)              | 1                    | 5                              | 8                           | 2                             | 0                           | 1                             |
| Continuous drinking (No. of persons)                   | 2                    | 3                              | 16                          | 2                             | 1                           | 3                             |
there is a wide variation of the values on the above parameters. Only a minority (3 patients) had recent (within previous 1 year) history of jaundice and 17 patients (41.5%) had evidence of hepatomegaly. Fourteen (41.5%) individuals had discontinued their drinking for a minimum of 2 weeks at a stretch during the previous 6 months. Among the rest there was no such gap. Biochemical values are shown in Table-2. It was seen in our earlier analysis that alcoholics as a group were significantly different from the normal controls. They have elevated values on SGOT, SGPT, GGT and total cholesterol (Ray et al 1985). The values of total serum protein and albumin are within the normal range and similar to the controls, thus ruling out protein malnutrition. The serum bilirubin and alkaline phosphatase levels were also not altered. GGT was more disproportionately raised among the alcoholics. There, too, a marked variability was observed. The pathological lesions noted in our sample are shown in Table 3. For the sake of comparison figures observed in two important studies (one Indian, one Western) are also provided. As mentioned earlier only a minority (12.2 percent) had normal liver, while others had varying degrees of involvement, alcoholic hepatitis being predominant (56.1%). None had acute cholestatic disease, though evidence of mild intracellular cholestasis was noted in a few cases. The sclerosing hyaline neurosis, described by Edmondson (1963) along with creeping fibrosis was seen only in 3 cases and labelled as alcoholic precirrhosis. Mallory's

Table 3
Spectrum of Pathological Changes in ALD in Biopsy Series

| Histological Diagnosis | 23 Liver Biopsy Series (1965-82) | P.G.I. Series among 5448 Alcoholics (Leibach, 1976) | Present | 41 Biopsies |
|------------------------|----------------------------------|-----------------------------------------------|--------|-------------|
| AH                    | 8 (15.3%)                        | 23 (55.4%)                                    | 7 (17.5%) | 14 (34.1%)  |
| AC                    | 6 (13.3%)                        | 25 (56.1%)                                    | 3 (7.3%) | 1 (2.4%)    |
| Non specific hepatitis | 5 (12.2%)                        | 6 (41.5%)                                     | 2 (7.3%) | 3 (7.3%)    |

Table 2
Biochemical Parameters

|              | Normal Liver (N = 5) | AF (N = 6) | AH (N = 23) | APC (N = 3) | AC (N = 1) | Non Specific Hepatitis (N = 3) | Control Group (N = 52) |
|--------------|----------------------|------------|------------|-------------|-----------|--------------------------------|------------------------|
| Total Protein| 7 ± 0.9              | 6.6 ± 0.4  | 6.9 ± 0.5  | 6-6.9       | 8         | 5.8-7.7                        | 7.1 ± 0.5              |
| Albumin      | 4.3 ± 0.7            | 4.1 ± 0.7  | 4.1 ± 0.5  | 3.5-4.1     | 5.1       | 2-4.8                          | 4.2 ± 0.4              |
| Bilirubin    | 0.9 ± 0.4            | 0.7 ± 0.3  | 0.8 ± 0.5  | 0.6-1.4     | 1.1       | 0.5-1.4                        | 0.7 ± 0.4              |
| ALP (IU/L)   | 10.4 ± 2.3           | 12 ± 2.4   | 10.9 ± 4.3 | 8-13.6      | 6         | 4-28                           | 12.2 ± 4.5             |
| GOT (IU/L)   | 23.2 ± 14.3          | 32 ± 19.1  | 24 ± 17    | 19-60       | 60        | 11-19                          | 19.6 ± 11.2            |
| GPT (IU/L)   | 17.8 ± 28.6          | 22.6 ± 20.3| 19.3 ± 17.6| 18-67       | 60        | 7-22                           | 12 ± 7.9               |
| GGT (IU/L)   | 45.6 ± 36.3          | 42.2 ± 39.2| 47 ± 40.5  | 120-170     | 75        | 6-470                          | 16.9 ± 14              |

Normal Lab Values within Parenthesis
AF = Alcoholic fatty Change.
AH = Alcoholic hepatitis
AC = Alcoholic Cirrhosis.
alcoholic hyaline, once considered to be pathognomonic of ALD was not frequent in our material. Our figures on combined precirrhosis and cirrhosis (10%) are much less than the other two studies. This is probably due to our sample being from a psychiatric hospital.

In some, liver biopsy may not always show pathognomonic features of alcoholic hepatitis. It is known that a few other conditions viz., chronic persistent hepatitis, chronic active hepatitis, reactive hepatitis due to drugs and toxin and bypass surgery for obesity may cause lesions similar to alcoholic hepatitis. In our series, even with the history of alcoholism, a diagnosis of non-specific hepatitis was given when the hepatocytes showed marked anisocytosis in the absence of satellitosis and fatty change.
The possibility of viral hepatitis as evidenced by increased frequency of hepatocyte necrosis in the sera of alcoholics can also be expected (Perperas et al 1981). In our sample none of the hepatocytes revealed the ground glass appearance noticed in viral hepatitis. Moreover, SGOT elevation is higher than SGPT in alcoholics in contrast to viral hepatitis. So also high GGT (Pimstone and French, 1984). However, we did not undertake any serological test and the possibility of viral hepatitis complicating our finding needs further exploration.

Ten percent (Table 3) had precirrhois and cirrhosis, the irreversible stage of ALD. It is usually a mixed micro and macro nodular type. Autopsy studies indicate that cirrhosis may go unrecognized in about 40% of patients and in 20% is detected during investigation for other unrelated condition (Salaspura and Leiber 1975).

The role of malnutrition in development of ALD also needs to be considered. In our sample serum protein and albumin, crude indicators of nutritional status were within normal limits (Table 2). On a sub sample from the group mean weight was 57 ± 9.2 KGS and mean Hb was 12.8 ± 1.4 gm%, which definitely does not need any further investigations for anaemia. Analysis of dietary intake among a small number of these patients indicated adequate protein and caloric intake. The above findings would suggest that malnutrition per se could not be a factor responsible for the liver pathology observed in our series. Rubin and Leiber (1979) fed a balanced nutritious diet along with large quantity of alcohol to baboons and could produce the entire spectrum of ALD, thereby suggesting that ethanol is a direct hepatotoxin. The transition from one stage of ALD to the other depends upon the duration of drinking and amount consumed (Lelbach 1974). We did not attempt any correlation between the degree of liver damage and various clinical parameters because of small sample size in the various sub groups.

The prognosis and management of alcoholics demand assessment of liver pathology and biopsy is therefore indicated even among patients with no overt clinical signs. It is important for the mental health professional to diagnose the disease before it becomes irreversible. Only with the intimate knowledge of pathological findings the clinicians can adopt an aggressive approach to manage alcoholism.

References

BHAGWAT, A. G. & ISLAM, M. (1980), Alcoholic liver disease in man (1911 -1979), A probing review – Part II, Indian Journal of Pathology and Microbiology, 23, 73 – 88.

EDMONDSON, H. A. PETER, R. L., REYNOLDS, T. B. & KUZMA, O. T. (1963), Sclerosing hyaline necrosis of the liver in the chronic alcoholics, Annals of Internal Medicine, 59, 646 – 672.

LELBACH, W. K. (1974), Research advances in alcohol and drug problems. Eds. Gibbins, R. J., Israel Y, Kalant H., Popham R. E., Schmidt, W and Smart, R. G. John Wiley and Sons N. Y. Vol.1.

LELBACH, W. K. (1975), Cirrhosis in the alcoholic and its relation to the volume of alcohol abuse, Annals of New York Academy of Science, 252, 85 – 105.

PIMSTONE, N. R. & FRENCH, S. W. (1984), Alcoholic liver disease. Medical clinics of North America, 68, 39 – 56.

PERPERAS, A., TSANTOULES, D., PORTMANN, B., EDDLESTON, ALWF & WILLIAMS, R. (1981), Autoimmunity to a liver membrane lipo protein and liver damage in alcoholic liver disease, Gut, 22, 149 – 152.

RAJWANSHI, A., ISLAM, M., BHAGWAT, A. G., KAMATH, P. S. & JOSEPH, R. (1985), Alcoholic liver disease in North India, Indian Journal of Pathology and Microbiology, 28, 129 – 136.

RAY, R., TANARATH SHETTY, K., SHANKAR, S. K., GENTIANA, M., DESAI, N. & SUBBAKRISHNA, D. K. (1985), Male Alcoholism – Biochemical correlates and liver
damage. Paper read at the symposium Biolo­
gical problems of Alcoholism, Kiev, U S S R.

RUBIN, E. & LIEBER, C. S. (1974). Alcoholic
Liver disease, Liver and biliary disease, Eds,
Wright R. Saunders and co., Philadelphia.

SPITZER, R. L., ENDICOTT, J. & ROBINS, E.
(1978). Research Diagnostic Criteria (RDC).

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