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Study of drug dependence with associated comorbid physical health disorder

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Abstract

Objectives: The purpose of this study was to find out comorbidity of physical disorders among a random sample of alcohol and drug dependence patients.
Setting: Indoor patients at Model Drug Deaddiction Centre, Jallandhar.
Design: Observational study.
Material and Methods: Comprehensive data was collected from indoor patients admitted in Model Drug Deaddiction Centre, Jallandhar from May 2017 to October of 2017. The patients were assessed using DAMS (Drug Abuse Monitoring System Proforma). Their sociodemographic data was also registered.
Results: The major comorbid physical disorders associated with alcohol and drug abuse were anaemia, leoucocytosis and leucopenia, liver parenchymal disorders and jaundice.
Conclusions: The study concluded that majority of substance dependent patients suffered from comorbid physical disorders. Comorbidity needs to be taken into account when analyzing the relationship between substance dependence and in planning treatment strategies for comorbid conditions.
There is increased risk for HBV and HCV in drug and alcohol use. People abusing drugs often suffer from impaired judgement and engage in risky sexual behaviour, thus increasing the risk of contracting HIV. Drug and alcohol use can also directly damage the liver, increasing risk for chronic liver disease and cancer among those infected with hepatitis. Thus there is need for early detection and treatment of hepatitis infections in drug users.

Keywords: Drug dependence; Physical health disorder

Introduction

Addiction is a brain disorder characterized by compulsive engagement in rewarding stimuli despite adverse consequences. Despite involvement of a number of psychosocial factors, a biological process –one which is induced by repeated exposure to an addictive stimulus – is the core pathology that drives the development and maintenance of an addiction. Drug dependence is an adaptive state associated with a withdrawal syndrome on cessation of exposure to stimulus i.e. drug intake. When two disorders or illnesses occur in the same person, simultaneously or sequentially, they are described as comorbid. Comorbidity also means that the illnesses interact, affecting the course and prognosis of both. This is a result of the high prevalence of comorbidity, the complexity of treating it, and its association with poor treatment outcomes for those affected. This research report provides information on the state of the science in the comorbidity of substance use disorders with physical health conditions.

Drug and alcohol use places people at particular risk for contracting viral hepatitis. Engaging in risky sexual behavior that often accompanies drug use increases the risk of contracting HBV and, less frequently, HCV. People who inject drugs (PWID) are at high risk for contracting HBV and HCV from shared needles and other drug preparation equipment. Drug and alcohol use can also directly damage the liver, increasing risk for chronic liver disease and cancer among those infected with hepatitis.

Materials and Methods

A total of 214 patients were enrolled from the patients coming to the indoor department of Model Drug Deaddiction Centre, Jallandhar from May 2017 to October of 2017. The interview was done according to DAMS (Drug Abuse Monitoring System Proforma). All patients were under the clinical management of a consultant psychiatrist. Face-to-face interviews were conducted. The socio-demographic including age, sex, marital status, residence, literacy level etc. were taken. Clinical details were recorded.

Inclusion Criteria:

1. Alcohol Dependence and /or Drug Dependence
2. Age between 18-65 years
3. Consent.

Following tools were used:

Socio-demographic proforma sheet

This self- made questionnaire contained questions on socio- demographic details including age, sex, marital status, residence, literacy level etc. were taken

DAMS: Regarding substance abuse .

Results

Table 1. Sex distribution: All patients were male

Table 2 Residence: Rural 77 Urban 137

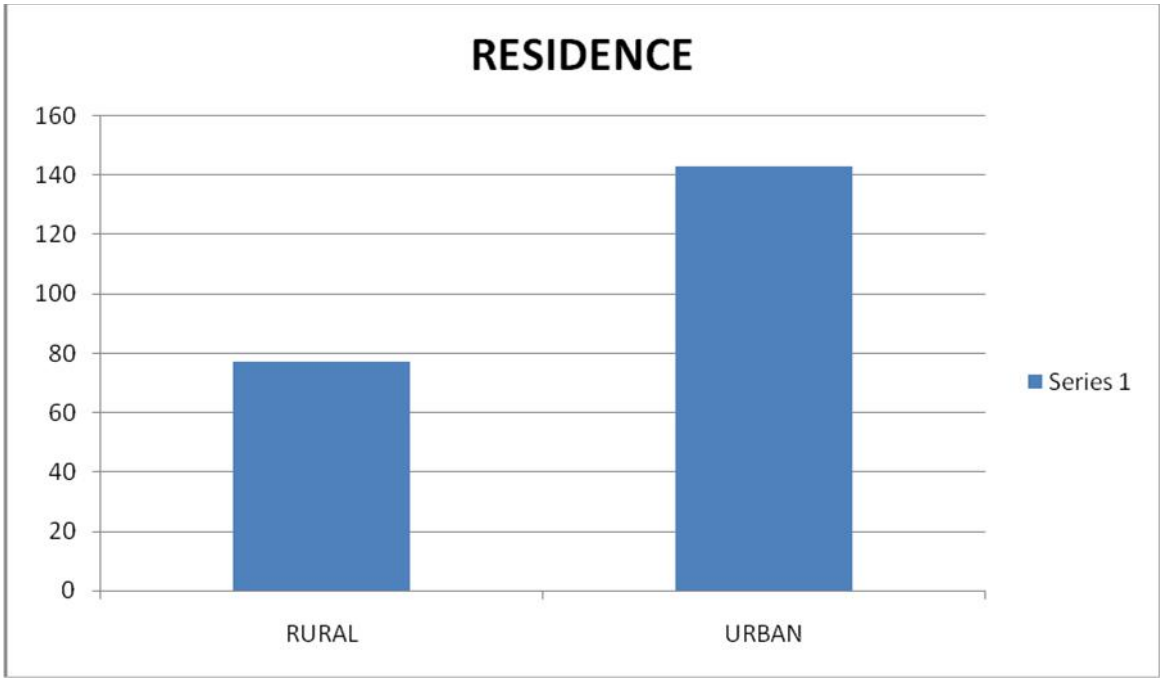


Table 4. Literacy level.

Below and matriculation	Senior secondary +2	Above +2
97	92	25

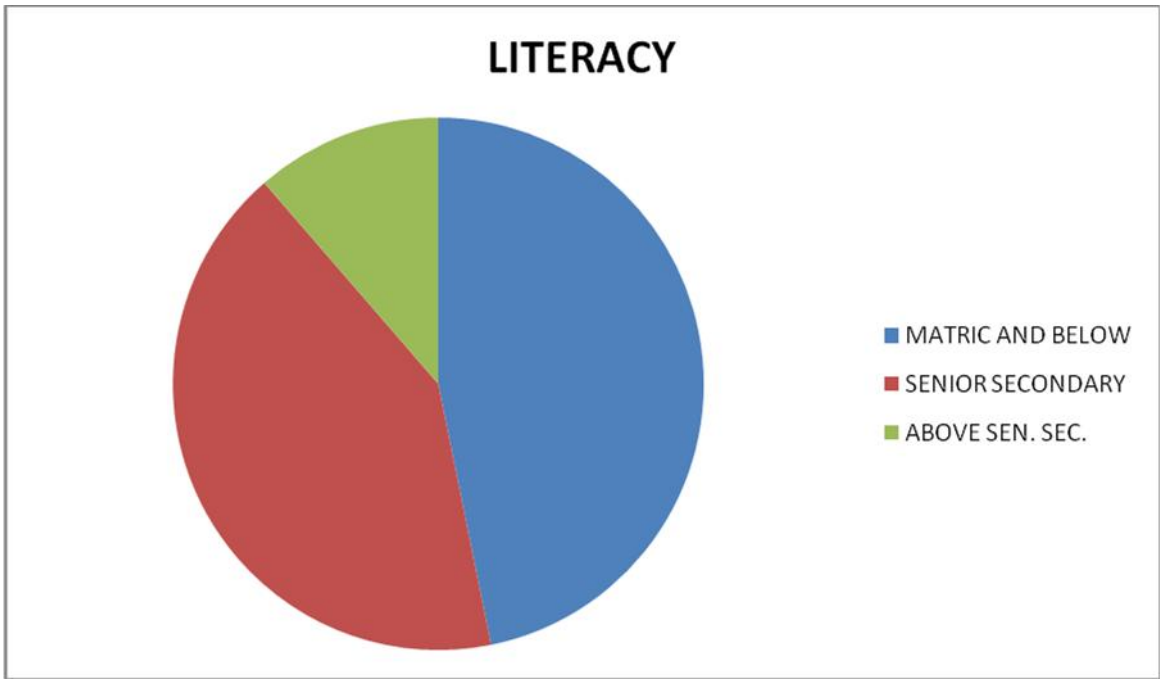


Table 5. DAMS

Substance dependence	No. Of patients
Opoids	28
Opoids and tobacco	13
Opoids and cannabis	9
Opoids and sedatives	13
Alcohol	27
Alcohol and tobacco	14
Sedative/hypnotics	10
Polysubstance	107
Total	214

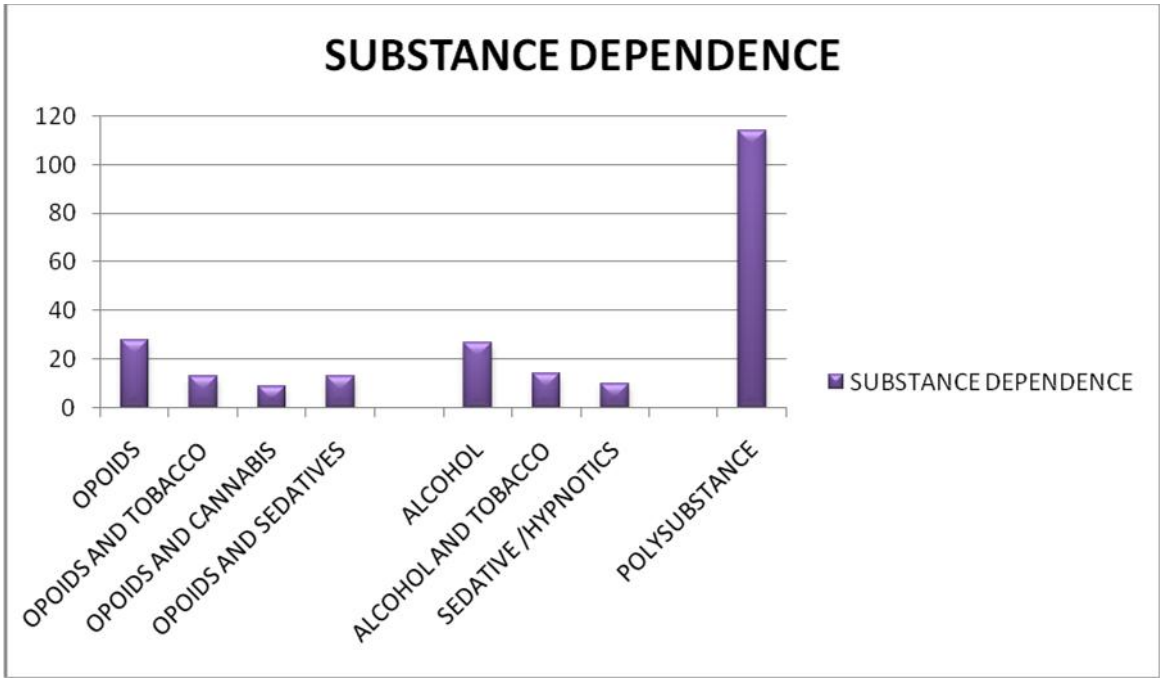


Table 6. Comorbid Somatic Disorders

	No of patients
Anaemia(5-10gm)	17
Leucocytosis(>11000)	15
Leucopenia(<4000/cu.mm.)	9
Thrombocytopenia(<1.5 lac)	42
Thrombocytosis(>4.5 lac)	1
Abnormal liver profile(AST,ALT,S.bil)	64
Abnormal Renal Profile (B.Urea, S. Creatinine)	8
Hyperuricemia(>6.0)	22
HIV	6

Besides, there was one patient with h/o tuberculosis and two with high blood sugar levels. One had elevated ST segment on ECG

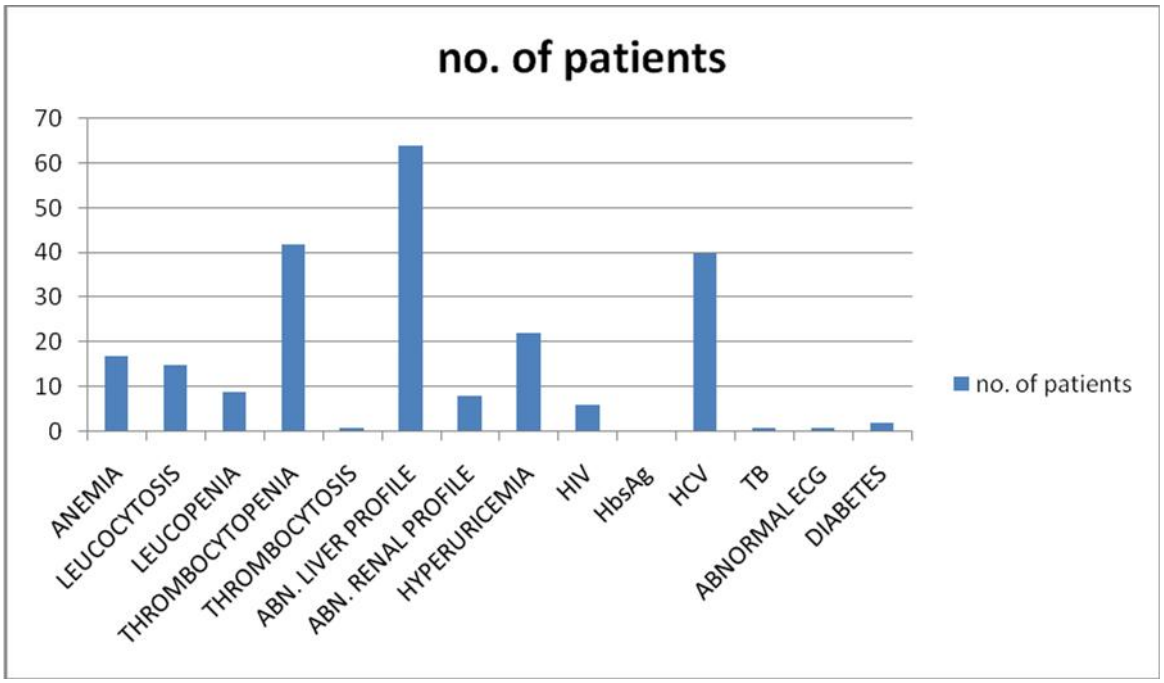
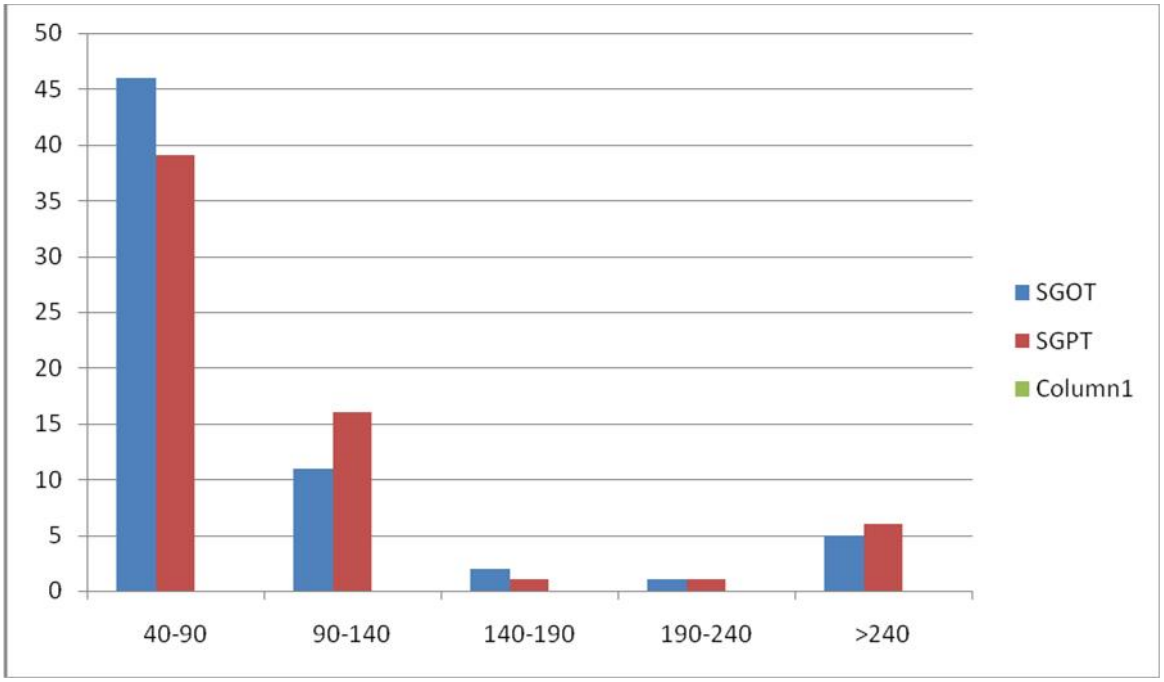


Table 7. Liver disease

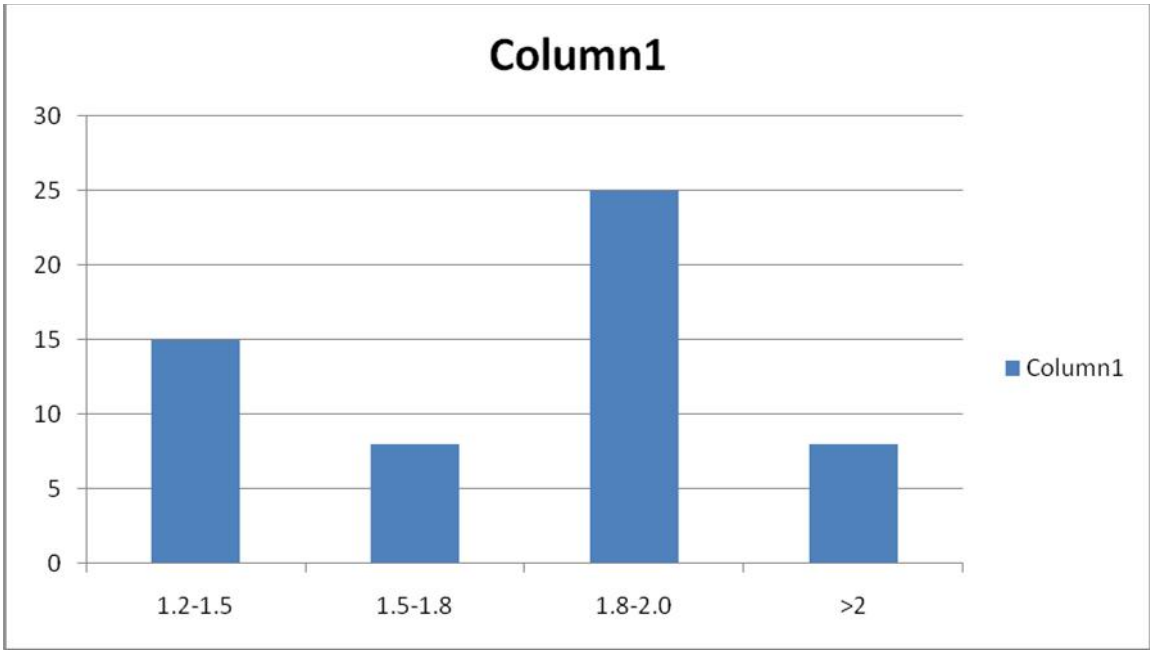
A. SGOT/SGPT Levels

SGOT Levels	No. of patients	SGPT Levels	No. of patients
40-90	46	40-90	39
90-140	11	90-140	16
140-190	2	140-190	1
190-240	1	190-240	1
>240	5	>240	6



B. Serum bilirubin levels

S. bil levels	No. of patients
1.2-1.5	15
1.5-1.8	8
1.8-2	25
>2	8



C. HIV:6. HCV:40, HBsAG:9

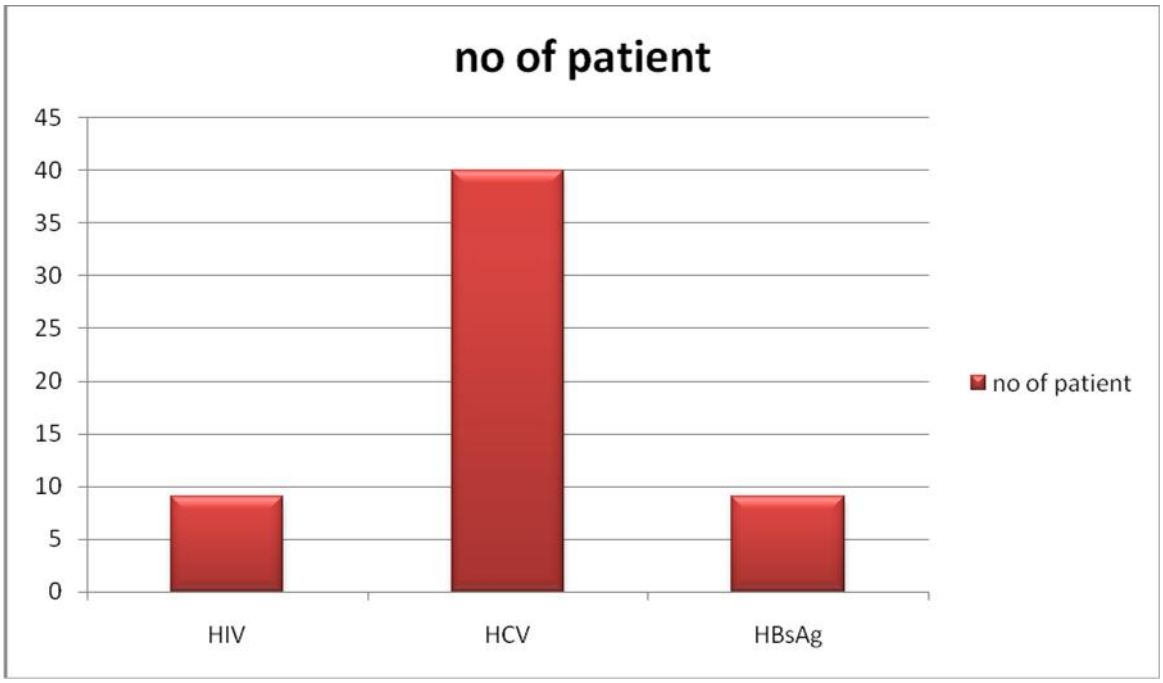


Table 8. Renal profile (blood urea, serum creatinine levels

B.Urea	No. of patients	s. creatinine	No. of patients
40-50	3	1.1	2
50-60	0	1.2	3
60-70	0	1.3	1
70-80	3	1.7	1
>80	0	1.8	1

Abnormal liver profile followed by infection with HCV are the most commonly associated somatic disorders in our study. Alcohol remains one of the most common causes of both acute and chronic liver disease in the United States The mortality from alcoholic cirrhosis is higher than that of nonalcoholic cirrhosis with a survival rate at 5 and 10 years of only 23% and 7%, respectively.[3]enia.

Discussion

Abnormal hemogram: Patients with alcoholic liver cirrhosis will often have leukocytosis and thrombocytopenia. Leukemoid reactions with counts of >100,000 white blood cells (WBC)/mm^3 in the absence of infection can be seen in such patients. While thrombocytopenia that is secondary to heavy alcohol consumption may resolve with abstinence, it is persistent in patients with concomitant cirrhosis. Elevation of bilirubin, prolongation of prothrombin time (PT) and hypoalbuminemia are markers of severe alcoholic hepatitis and/or cirrhosis[3].In our study abnormal hemogram is seen in 17 patients while 42 patients show thrombocytopenia

1. Anemia: Hemoglobin is a protein within red blood cells. Hemoglobin allows red blood cells to carry oxygen to the rest of the body. Measuring hemoglobin levels helps to estimate the number of red blood cells in the body. A low hemoglobin level is referred to as "anemia." If hemoglobin levels are very low, patients may feel tired easily.

2. Leucocytosis/ Leucopenia: WBCs are produced in the bone marrow, an area in the middle of many bones. Low WBC "counts" may develop as a side effect of interferon treatment. A low WBC count may be caused by cirrhosis of the liver, alcohol use, medications, or other medical conditions

3. Thrombocytopenia: Platelet count in the blood is measured as part of the complete blood count (CBC).Platelet counts in a patient who has cirrhosis are often low. But low platelet counts can also come from other causes, including certain medications. Interferon treatment can reduce platelet counts. When the platelet count is extremely reduced, this condition is known as "thrombocytopenia." If a platelet count is too low, the patient cannot make normal clots and may bruise more easily.

B. Liver enzymes: No one laboratory abnormality is sufficient to make the diagnosis of an alcohol-related liver injury. .Upto 80% of of alcoholic liver disease have abnormal AST/ALT levels Alkaline phosphatase levels may be normal or significantly elevated, while albumin levels are commonly decreased in ALD patients. Hypertriglyceridemia, hyperuremia, hypokalemia, hypomagnesemia, and an elevated MCV can also be seen with chronic alcohol consumption and subsequent liver disease[3]. In our study liver enzymes (AST/ALT) were abnormal in 30% of the cohort while serum bilirubinemia is seen in 26% of the patients.

1. Aspartate aminotransferase: (AST or SGOT) and alanine aminotransferase (ALT or SGPT) are the most sensitive and widely used of liver enzymes for detecting liver damage. normally these enzymes are confined to liver cells, however in case of liver damage their levels increase in blood.

The enzyme aspartate aminotransferase (AST) is also known as serum glutamic oxaloacetic transaminase (SGOT); and alanine aminotransferase (ALT) is also known as serum glutamic pyruvic transaminase (SGPT). AST = SGOT and ALT = SGPT. The normal range of values for AST (SGOT) is from 5 to 40 units per liter of serum (the liquid part of the blood). The normal range of values for ALT (SGPT) is from 7 to 56 units per liter of serum. The highest levels of AST and ALT are found with disorders that cause the death of numerous liver cells (extensive hepatic necrosis). This occurs in such conditions as acute viral hepatitis A or B, pronounced liver damage inflicted by toxins as from an overdose of acetaminophen (Tylenol), and prolonged collapse of the circulatory system when the liver is deprived of fresh blood bringing oxygen and nutrients. The most common cause of mild to moderate elevations of these liver enzymes is fatty liver .Causes of fatty liver include alcohol abuse, diabetes mellitus and obesity. Chronic hepatitis C is also becoming an important cause of mild to moderate liver enzyme elevations.

2. Serum bilirubin: Bilirubin is a yellowish substance that is created by the breakdown (destruction) of hemoglobin, a major component of red blood cells. As red blood cells age, they are broken down naturally in the body. Bilirubin is released from the destroyed red blood cells and passed on to the liver. The liver excretes the bilirubin in fluid called bile. If the liver is not functioning correctly, the bilirubin will not be properly excreted. Therefore, if the bilirubin level is higher than normal, it may mean that the liver is not functioning correctly. Levels of bilirubin in the blood go up and down in patients with hepatitis C. When bilirubin levels remain high for prolonged periods, it usually means there is severe liver disease and possibly cirrhosis. High levels of bilirubin can cause jaundice (yellowing of the skin and eyes, darker urine, and lighter-colored bowel movements)..Total bilirubin is made up of 2 components: direct bilirubin and indirect bilirubin. Direct bilirubin + indirect bilirubin = total bilirubin.

C. Hepatitis and HIV

In our study 6 patients were HIV positive while 40 (18%) were HCV positive and 9 were HBsAg positive .In a study by Vicknasingam the prevalence of hepatitis C virus (HCV) among heroin dependants in treatment was estimated at 89.9% . HCV prevalence was 65.4% for the overall sample, but higher among injecting drug users (67.1%) relative to non-injecting drug users (30.8%). [1]; Studies of HIV-positive patients have consistently shown that drug users, in particular injection drug users (IDU), are far more likely to have hepatitis C virus (HCV) infection than other patient groups. HIV incidence and prevalence in IDU has declined in recent years, but HCV remains endemic in this population[2.] A study of IDU admitted to drug treatment in six US cities reported an HCV prevalence between 66 and 93%, with a strong correlation between age and prevalence in each city An excess occurrence of HCV infection has been reported among individuals who smoke or inhale drugs such as heroin, cocaine or amphetamines. Data to support the hypothesis of HCV transmission in non-injection drug user populations are scant, but relatively consistent.[2]

1.Hepatitis B: HBsAg (hepatitis B surface antigen)is used to detect if a person is infected with hepatitis B. Other test that could be done include HBsAb (hepatitis B surface antibody).and HBcAb (hepatitis B core antibody). Positive test for HBcAb means that person was infected or exposed to hepatitis B virus in the past, cleared the virus, and are now "immune" (protected) against another infection with hepatitis B. If you test positive for HBsAb but negative for HBcAb, then you were vaccinated against hepatitis B and are protected by the vaccination.

2. Hepatitis C: Injection drug use is the major source of hepatitis C infection as it is easily transmitted among injection drug users. The hepatitis C recombinant immunoblot assay (RIBA) is the confirmation test for the hepatitis C antibody. If the result of the HCV RIBA is positive, this confirms that the detection of a hepatitis C antibody (anti-HCV) was a true

positive, meaning that there has been infection with hepatitis C in the past. If the HCV RIBA result is negative, it means there has not been infection with hepatitis C. If an earlier hepatitis C antibody (anti-HCV) test had been positive, then this was a false positive.

3. HIV: HIV is transmitted by contact with the blood or other body fluids of an infected person. This can occur during unprotected sex, through the sharing of needles[5]. In addition, untreated infected women can pass HIV to their infants during pregnancy, delivery, and breastfeeding. It has been seen that alcohol and drug misuse can result in greater neuronal injury and cognitive impairment, thus worsening the symptoms of HIV. Drug and alcohol abuse has also been associated with unsafe sexual practices further increasing the possibility of getting infected with HIV.

D. Renal insufficiency: The level of creatinine in the body is a marker of kidney function. Creatinine comes from the breakdown of creatine, a muscle protein. Properly functioning kidneys remove creatinine from the blood. High levels of creatinine mean that the kidneys are not functioning normally. When creatinine levels rise gradually, there are not usually any symptoms, and the higher levels can be detected only with blood tests. A high creatinine level is sometimes referred to as "renal insufficiency. If creatinine level is too high, we may have to defer hepatitis C treatments.

In a retrospective study by Bonnecaze AK et al , prevalence and outcomes of AKI among patients intravenously abusing extended-release oral oxymorphone were analyzed. 165 patients were found to have a documented history of intravenous abuse of extended-release oral oxymorphone. Prevalence of AKI in this population was a 47.8%. KDIGO stage-I patients consisted of 17.8% of patients with AKI, 40.5% were classified as KDIGO stage-II AKI, and 41.8% were classified as KDIGO stage-III AKI. Among patients with AKI, average age was found to be 37.5 years, 59.4% experienced renal recovery, 56.9% required intensive care unit admission, 13.9% progressed to end-stage renal disease (ESRD), and 7.6% expired during admission[6]. Our study shows abnormal renal profile in 6-8 patients.

Conclusion

People with substance use disorders are at particular risk for developing one or more primary conditions or chronic diseases. When primary conditions simultaneously co-occur with substance use disorders, they are referred to as comorbidities[1.]. People in substance use disorder treatment should include cotesting HIV, HCV, etc.

HIV, AIDS, and viral hepatitis are important public health concerns for both patients and health professionals. Medication-assisted treatment (MAT) typically involves HIV and hepatitis antibody testing at admission, or a referral for antibody testing. It is common in people seeking treatment for drug abuse disorder[4]. More IDUs have anti-HCV than HIV infection, and viral hepatitis poses a key challenge to public health.[14]

Hepatitis B infection and/or hepatitis C infection is complex, long-term. It has been shown that each injection drug user infected with hepatitis C virus is likely to infect about 20 others, and that this rapid transmission of the disease occurs within the first three years of initial infection.

HIV and AIDS Drug use is an important driver of the HIV epidemic. Nine percent of all new HIV infections occur among injection drug users, 3% of whom are men who have sex with men (MSM). Currently, no vaccine exists to protect a person from getting HIV, and there is no cure.

However, HIV prevention and reduced transmission are key goals of opoid treatment programs and other programs designed to treat substance use disorders. HIV medications can also help prevent HIV transmission and the progression of HIV to AIDS, prolonging lives. Studies have also found that treatment through medication-assisted therapy [6] may reduce HIV transmission among PWID by 54%. .The

interaction effect for knowledge of HCV status and history of drug treatment (β = -0.60, SE = 0.27, p = 0.0240) was significant[9] People who inject drugs (PWID) are historically viewed as having "difficult to treat" hepatitis C disease, with perceived inferior treatment adherence and outcomes, and concerns regarding reinfection risk[11]

Our study group was a small group compared to the studies quoted. The long term longitudinal studies are needed to establish the physical comorbidities with drug abuse.

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