

PREVALENCE OF JAUNDICE BASED ON LIVER FUNCTION TEST IN WESTERN NEPAL

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Objectives: The aim of this study was to evaluate the Prevalence of Jaundice Based on Liver Function Test in Patients Attending OPD of Nepalgunj Medical College and Teaching Hospital. **Materials and Methods:** A hospital based study was carried out in Nepalgunj Medical College, Kohalpur, Banke Nepal to determine prevalence of jaundice. A total of 4280 subjects females and males were included in this study. The study took place from February 2012 to January 2013. Liver function tests were performed using serum levels of bilirubin, total protein, albumin, serum glutamate oxaloacetate transaminase (SGOT), serum glutamate pyruvate transaminase (SGPT), and alkaline phosphatase (ALP) as indicators of liver function. The results obtained from the above investigation were analyzed and expressed as mean \pm SD by using Excel 2007. The comparison was done by student t test on no. of variable of each parameter using SPSS version 16. **Results:** We investigated the prevalence of jaundice in 4280 subjects on the basis of liver function test. Out of 4280 subjects, 152 patients (3.55%) were selectively diagnosed as jaundiced and another 152 healthy individuals have taken as control. The serum concentrations of all the parameters of liver function test in jaundiced patients were significantly higher ($p < 0.0001$) than those of controls except total protein and albumin which was significantly lower in ($p < 0.0001$) experimental group than the control group. **Conclusions:** Therefore, from the trend of our data, we can conclude that liver dysfunction is a very common feature in the population of western part of Nepal this may be due most of the people are addicted to alcohol consumption. This need to be stopped and continuous surveillance for bilirubin test is very important to diagnose the jaundice.

Keywords: Prevalence, Liver function test, Jaundice

INTRODUCTION

Liver has to perform different kinds of biochemical, synthetic and excretory functions, so no single biochemical test can detect the global functions of liver. All laboratories usually employ a battery of tests for initial detection and management of liver diseases and these tests are frequently termed "Liver function tests", although they are of little value in assessing the liver function per second. In spite of receiving a lot of criticism for this terminology, the phrase 'Liver function tests' is firmly entrenched in the medical lexicon. It might be argued that 'Liver injury tests' would be a more appropriate terminology. Moreover, the clinical history and physical examination play important role to interpret the functions. The role of specific disease markers, radiological imaging and liver biopsy cannot be underestimated.^{1,2}

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The presence of jaundice is usually, but not always, a sign of liver disease. The causes of jaundice are many and range from the common to the rare. The most common causes encountered in Southeast Asian region are; infective hepatitis, obstruction to bile ducts by gall stones or tumors, alcoholic liver disease, drugs, etc. [3] Chronic and excessive alcohol ingestion is one of the major causes of liver disease in Nepal. Till date detail study on the prevalence of jaundice in and around the population of Nepalgunj of western Nepal is scanty. Keeping in view the above facts, the present study was undertaken to assess the prevalence of jaundice based on liver function tests in the populations of Nepalgunj who attended the OPD of Nepalgunj Medical College Teaching Hospital.

Method and material

This retrospective study was carried out at the OPD of Nepalgunj Medical College, Nepalgunj, Nepal from the period of February 2012 to January 2013. A total of 4280 subjects were surveyed for this study. Out of 4280 subjects, 152 patients were selectively diagnosed as jaundiced. The same

number 152 of healthy individuals included in this study which serves as a control group. The mean age of all subjects were found to be 49.08 ± 11.11 years.

A case of jaundice is diagnosed with a history of significant physical signs and supportive laboratory data of liver function tests. Abnormalities in liver function tests are increased or decreased levels of static biochemical tests, including serum glutamate-oxaloacetate transaminase (SGOT), serum glutamate pyruvate transaminase (SGPT), alkaline phosphatase (ALP), bilirubin, total protein and albumin. The tests are most frequently obtained as part of liver function test panels. Serum levels of conjugated (direct) and total bilirubin were determined according to the method described by Kaplan.⁴ The concentration of alkaline phosphatase (ALP) was determined as described by Burtis and Ashwood.⁵ Serum glutamate-pyruvate transaminase (SGPT) and serum glutamate-oxaloacetate transaminase (SGOT) were determined according to the method of Wilkinson et al.⁶ The conventional Biuret method was used in the estimation of protein level.⁷

The results obtained from the above investigation were analyzed and expressed as mean \pm SD by using Excel 2007. The comparison was done by student t test on no. of variable of each parameter using SPSS version 16. Ethical approval for the study was taken from the institutional research ethical committee.

RESULTS

Out of 4280 subjects, 152 patients were selectively diagnosed as jaundiced serves as experimental group (A). The same number 152 of healthy individuals included in this study which serves as a control group (B). The mean ages of all subjects were found 49.08 ± 11.11 years.

Serum levels of bilirubin, protein and lbumin of control and experimental groups were presented in Table 1. Serum concentration of liver enzymes of control and experimental groups were listed in Table 2.

Table 1 Serum levels of Bilirubin, Protein and Albumin of control and experiment groups

Parameters	Control n=152	Experiment n= 152	p
Total bilirubin (mg/dl)	0.64 ± 0.24	4.20 ± 1.01	0.0001
Direct bilirubin (mg/dl)	0.19 ± 0.09	1.32 ± 0.92	0.0001
Total protein (gm/dl)	6.98 ± 1.01	6.36 ± 0.82	0.0001
Albumin (gm/dl)	4.62 ± 0.72	4.21 ± 0.80	0.0001

Table 2 Serum concentration of liver enzymes of control and experiment groups

Parameter	Control n = 152	Experiment n = 152	p
SGOT (IU/L)	23.04 ± 8.07	130.01 ± 7.30	<0.05
SGPT (IU/L)	21.01 ± 3.23	110.00 ± 5.10	<0.05
Alkaline phosphatase (IU/L)	135.02 ± 30.35	410.00 ± 50.23	<0.05

DISCUSSION

A total of 4280 subjects were surveyed for this study, out of 4280 subjects, 152 patients (3.55%) were selectively diagnosed as jaundiced and 96.45% were without jaundice (Figure 1).

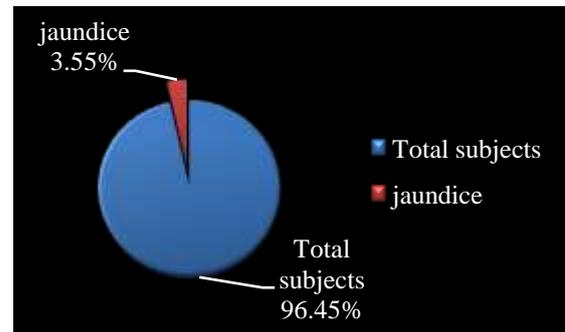


Figure1 Prevalence of Jaundice

When diagnosing patients with liver disorders, it is important to employ appropriate history taking and physical examination to narrow down the differential diagnoses that are suggested by patterns of abnormal liver functions and to accurately determine the causative diseases on the basis of blood tests findings.

Results of our study showed that the important markers of jaundice; total and direct bilirubin are also significantly high in the experimental group. On the other hand, in contrary to this finding, our results revealed that serum albumin and total protein levels are significantly lower in the experimental group compared to control (Table 1) which corroborates well with the earlier report.⁸

In our study, we investigated all the parameters of liver function tests and the results of liver function enzymes i.e. SGPT, SGOT and ALP are significantly elevated in the experiment group than the control group (Table 2) which is in accordance with the earlier report that all parameters of liver enzymes are elevated during liver dysfunction.⁹

The serum concentrations of all the parameters of liver function test in jaundiced patients were significantly higher ($p = 0.0001$) than those of controls except total protein and albumin which was significantly lower ($p < 0.0001$) in experiment group than the control group.

CONCLUSION

Therefore, from the trend of our data, we can conclude that liver dysfunction is a very common feature in the population of western part of Nepal this may be due most of the people are addicted to alcohol consumption. This need to be stopped and continuous surveillance for bilirubin test is very important to diagnose the jaundice. Periodic analysis of liver function test is important to know the liver dysfunction.

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