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# Effect of Instructional Program Concerning Hepatic Cirrhosis on Patient's Knowledge: A Case – Control Study

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**Abstract:** ***Background: Cirrhosis is an increasing cause of morbidity and mortality in more developed countries. It is the 14th most common cause of death in adults worldwide but the fourth in central Europe; it results in 1·03 million deaths per year worldwide. Objectives: the study aims to evaluate patient's knowledge about Liver cirrhosis disease. Methodology: A purposive sample of 60 patients with compensated and decompensated liver cirrhosis divided for two groups (30 patients study group and 30 patients control group); the study was conducted at Gastroenterology and Hepatology Teaching Hospital. Patient assessment sheet utilized for data collection. A descriptive statistical and inferential analysis was used to analysis the data. Results: the findings of present study revealed that the instructional program were effective on patients through the patients responses at posttest which as; the total mean of mean for patients knowledge about liver cirrhosis disease items at pretest was (1.1) in both group which indicate low knowledge to 1.5 at posttest in study group which indicate improvement in their knowledge, and stay (1.1) in control group without change because the patients unexposed to instructional program. Conclusion: the study concluded that the patients was improved their knowledge toward the hepatic cirrhosis disease and there is non-significant relationship between level of education and patient knowledge about liver cirrhosis disease. Recommendation:Health oriented mass media approach should be employed to improve the awareness about liver cirrhosis disease.***

**Keywords:** hepatic cirrhosis, patients knowledge, education & knowledge

## 1. Introduction

Cirrhosis is the irreversible fibrosis of the liver, the end stage of a final shared pathway in chronic damage to a major vital organ. It is the 8th leading cause of death in the United States and the 13th leading cause of death globally, with worldwide mortality having increased by 45.6% from 1990 to 2013 (1) . Despite of this fact there is a great deficiency in the proper management of such problem especially from its nutritional aspects. It well documented that the liver is involved in the metabolism of all nutrients, including proteins, carbohydrates, fats, vitamins and minerals with over 500 metabolic functions. In fact, the metabolic activity of the liver accounts for 20–30% of the oxygen consumption and energy expenditure of the body (2).Cirrhosis is an increasing cause of morbidity and mortality in more developed countries. It is the 14th most common cause of death in adults worldwide but the fourth in central Europe; it results in 1·03 million deaths per year worldwide (3).

Cirrhosis is the main indication for 5500 liver transplants each year in Europe. The main causes in more developed countries are infection with hepatitis C virus, alcohol misuse and increasingly, non-alcoholic liver disease; infection with hepatitis B virus is the most common cause in sub- Saharan Africa and most parts of Asia. The prevalence of cirrhosis is difficult to assess and probably higher than reported, because the initial stages are asymptomatic so the disorder is undiagnosed. Prevalence was estimated at 0·3% in a French screening program, and the annual incidence was 15·3–132·6 per 100 000 people in studies in the UK and Sweden (4).

The economic burden of cirrhosis in the United States is substantial, with annual direct costs exceeding $2 billion and indirect costs exceeding $10 billion (5). Annual costs increase with decompensation, with costs of $2,400 for the treatment of diuretic-sensitive ascites, $24,800 for the treatment of diuretic-refractory ascites, $25,600 for the treatment of variceal hemorrhage, $16,400 for the treatment of hepatic encephalopathy, and $44,200 for the treatment of hepatocellular carcinoma (1).

## 2. Methodology

### Research design

Quasi-experimental research design utilized in this study. The study starts from February 7th, 2017 through August 6th, 2017.

### Technical design setting

The study conducted in Gastroenterology & Hepatology Teaching Hospital in Medical City at Iraqi Baghdad Governorate

### Sample of the study

A non- probability (purposive) sample of 60 adult patients who have hepatic cirrhosis divided for two groups (30 study group and 30 control group), which visited Gastroenterology and Hepatology Teaching Hospital in Medical City. The study selected according to the following criteria:

### Inclusion Criteria to select the sample

The sample is selected according to the following criteria:

1) Patients with hepatic cirrhosis both male and female.
2) Adult patients age 19 years and above.
3) Those who are voluntary participated.

**Exclusion Criteria**
1) Patients with hepatic coma.
2) Psychiatric patients.

**Tool I: patient assessment sheet**
It developed by the researcher after reviewing of literature; it was consisted of three parts:

**Part (1): socio-demographic data sheet**
This portion is concerned with the collection of basic socio-demographic data gained from the patients from interview questionnaire sheet as (age, gender, education level, marital status, occupation, Place of residence**,** socio-economic status**)**

**Part (2): medical information sheet**
It was developed to collect the basic patients' past medical history data related to the medical condition it was obtained from the patients from interview questionnaire sheet such as (period of disease, Factors contributing to liver cirrhosis, clinical manifestation associated with hepatic cirrhosis and severity of hepatic cirrhosis according child Pugh score).

**Table 1:** Child Pugh score

| Clinical variable | 1 point | 2 point | 3 point |
|---|---|---|---|
| Bilirubin | <2 mg/dl (34 UM/l) | 2-3 mg/dl (34-50 UM/l) | >3 mg/dl (50 UM/l) |
| Albumin | >3.5 g/dl | 3.5-2.8 | <2.8 |
| PT prolongation (INR) | < 4seconds (<1.7) | (4 -6) seconds (1.7-2.3) | <6 seconds (>2.3) |
| Ascites | Absent | Mild-Moderate | Severe/Refractory |
| Encephalopathy | Absent | Mild (I-II) | Severe (III-IV) |

Child-Pugh Bottom interpretation Score:
- Class A = 5-6 points
- Class B = 7-9 points
- Class C = 10-15 points

**Part (3): patient knowledge about liver cirrhosis**
It was composed of (17) Items. The items were know and don't know questions. These rated as (2) for answer know and (1) for the don't know answer. The time of questionnaire answer list, for each patient took about (10-15) minutes.

***Validity of the instrument**

The content validity of the instruments has been established through a panel of eleven (11) experts ; ( 5) experts from the faculty of Nursing / university of Baghdad ;(5) experts from Gastroenterology and Hepatology teaching Hospital in Baghdad City , (1) expert from college of health and medical technology / Baghdad.

Data are analyzed through the application of Statistical Package of Social Sciences (SPSS) version (20) program of these approaches (Descriptive Statistical Data Analysis Approach and The Inferential Statistics Data Analysis).

## 3. Results

The current study is carried out to evaluate patient knowledge about liver cirrhosis.

**Table 2:** Distribution of the study Sample for both (Study and Control group) by Socio-demographic Characteristics

| Variables | Classification | Study group (N=30) | | Control group (N=30) | |
|---|---|---|---|---|---|
| | | Frequency | % | Frequency | % |
| Gender | Male | 18 | **60.0** | 15 | **50.0** |
| | Female | 12 | 40.0 | 15 | **50.0** |
| Age | 19-28 | 7 | 23.3 | 6 | 20.0 |
| | 29-38 | 3 | 10.0 | 1 | 3.3 |
| | 39-48 | 3 | 10.0 | 6 | 20.0 |
| | 49-58 | 7 | 23.3 | 4 | 13.3 |
| | 59 and more | 10 | **33.4** | 13 | **43.4** |
| Statistics | **Mean ± SD** | **46.8 ±14.1** | | **49.1±14.1** | |
| Level of Education | Read and Write | 4 | 13.3 | 12 | **40.0** |
| | Primary school | 11 | **36.7** | 8 | 26.7 |
| | Intermediate School | 5 | 16.7 | 2 | 6.6 |
| | Secondary School | 7 | 23.4 | 3 | 10.0 |
| | Diploma | 2 | 6.6 | 5 | 16.7 |
| | University and above | 1 | 3.3 | 0 | 0.0 |
| Marital Status | Single | 9 | 30.0 | 8 | 26.7 |
| | Married | 19 | **63.3** | 18 | **60.0** |
| | Widowed | 2 | 6.7 | 4 | 13.3 |
| Employment | Government employee | 6 | 20.0 | 6 | 20.0 |
| | Free job | 7 | 23.3 | 10 | 33.4 |
| | Retired | 8 | 26.7 | 2 | 6.5 |
| | Housewife | **9** | **30.0** | 12 | **40.0** |
| Residency | Urban | 24 | **80.0** | 22 | **73.3** |
| | Rural | 6 | 20.0 | 8 | 26.7 |
| Socio-economic Status | High Level | 5 | 16.7 | 3 | 10.0 |
| | Middle Level | 18 | **60.0** | 19 | **63.3** |
| | Low Level | 7 | 23.3 | 8 | 26.7 |

**N: number, %: percentage, SD: stander deviation, yrs.: years**

The table (2) shows that the majority of the study sample for both study group (case &control) are male (60.0%,50.0%) and the remaining are female( 40.0%,23.3%) respectively and also shows that the vast majority of the study sample for both study and control group are within fifth category of age groups and accounted for (33.4% , 43.4%) respectively. Relative to patients level of education, the greater number of them of study group primary school and accounted for (36.7%) ,also the major group of control group can read and write and they are accounted for (40.0%). Regarding to the patients marital status, the majority of the sample for both group (Study and Control) are married and they accounted for (63.3%, 60.0%) correspondingly. In addition, the major group of the both study sample (Study and Control) in regarding to their employments status are house wives and they accounted for (30.0%, 40.0%) respectively and this table depicts that the highest percentage of the study sample (Study and Control) are living in urban residential area and they accounted for (80.0%, 73.3%) correspondingly. Finally, in the above table and in regarding to the patients socio-economic status, the results show that the major group of the both study sample are within the moderate level of socio-economic status (60.0%, 63.3%).

**Table 3:** Medical Information of the Study Sample for both (Study and Control group)

| Variables | Classification | Study group (N=30) | | Control group (N=30) | |
|---|---|---|---|---|---|
| | | **Freq.** | **%** | **Freq.** | **%** |
| Duration of disease | < 6 months | 2 | **6.7** | 1 | **3.3** |
| | 6months-one year | 13 | **43.3** | 12 | **40.0** |
| | > 1 year | 15 | 50.0 | 17 | **56.7** |
| Causes of hepatic Cirrhosis | Hepatitis C virus | 3 | 10.0 | 8 | 26.7 |
| | Hepatitis B virus | 7 | 23.3 | 9 | 30.0 |
| | Alcohol | 3 | 10.0 | 3 | 10.0 |
| | Autoimmune | 9 | 30.0 | 4 | 13.3 |
| | Fatty liver | 4 | **13.3** | 3 | **10.0** |
| | Wilson disease | 4 | 13.3 | 3 | 10.0 |
| Have bleeding | Yes | 17 | 56.7 | 16 | **53.3** |
| | No | 13 | 43.3 | 14 | 46.7 |
| Site of bleeding | No | 13 | 43.3 | 14 | 46.7 |
| | Noise | 5 | 16.7 | 4 | 13.3 |
| | Mouth and gum | 3 | 10.0 | 4 | 13.3 |
| | Rectal | 3 | 10.0 | 2 | 6.7 |
| | Under skin | 6 | 20.0 | 6 | 20.0 |
| Have Ascites | Yes | 22 | 73.3 | 24 | 80.0 |
| | No | 8 | 26.7 | 6 | **20.0** |
| Severity of ascites | No | 8 | 26.7 | 6 | 20.0 |
| | Mild | 3 | 10.0 | 11 | 36.7 |
| | Moderate | 13 | 43.3 | 9 | 30.0 |
| | Sever | **6** | 20.0 | 4 | **13.3** |
| Splenomegaly | Yes | 22 | 73.3 | 13 | **43.3** |
| | No | 8 | 26.7 | 17 | 56.7 |
| Jaundice | Yes | 20 | 66.7 | 13 | 43.3 |
| | No | 10 | 33.3 | 17 | **56.7** |
| Lower limb edema | Yes | 11 | 36.7 | 4 | 13.3 |
| | No | 19 | 63.3 | 26 | 86.7 |

**N: number, %: percentage, Freq.: frequency, <: less than, >: more than**

This table summarizes the patients responding at the items level that are done. In response to the duration of disease, the major group of the both study sample (study and control)more than one year and they accounted for (50.0%. 56.7%) correspondingly. Also this table in cause of hepatic cirrhosis clarified that (10.0%) of the study group are hepatitis C virus, (23.3%) are hepatitis B virus , (10.0%) are alcohol cause ,(30.0%)are autoimmune cause and it's the major group, (13.3%) are fatty liver cause and (13.3%) of them are Wilson disease cause . In relative cause of hepatic cirrhosis in control group the results indicate (26.7%) are hepatitis C virus ,(30.0%) are hepatitis B virus and it's the major group ,(10.0%) are alcohol cause , (13.3%) are autoimmune cause, (10.0%) are fatty liver cause and (10.0%) of them are Wilson disease cause. In addition regarding the item of the have bleeding we can observe (56.7%, 53.3%) of the both study sample (study and control) have bleeding respectively and (43.3, 46.7%) of the both study sample (study and control)have not bleeding correspondingly. Also this table shows in item site of bleeding (43.3%) have not bleeding of the study group, (16.7%) have bleeding from noise, (10.0%) from mouth and gum ,(10.0%) from rectal and (20.0%) of them under skin. In response to the item have ascites the major group of the both study sample (study and control) present with ascites and they accounted (73.3%, 80.0%) respectively. In relative to the severity of ascites the majority of the study grouphas moderate ascites and they accounted (43.3%) and in regarding the severity of ascites the majority of the control group have mild ascites and they accounted (36.7%). In addition, the majority of the study group in relative to the splenomegaly have spleen enlargement and they accounted (73.3 %). While the majority of the control group presented without splenomegaly and they accounted (56.7%). Also the results shows that the majority of study sample in study group presented with jaundice and they accounted (66.7%) and this table illustrate that the majority of study sample in control group existing with no jaundice and they accounted (56.7%). In regarding the lower limb edema the majority of study sample in both group (study and control) have not edema and they accounted (63.3%, 86.7%) correspondingly.

**Table 4:** Severity of hepatic cirrhosis for both sample (study and control) group by child Pugh score

| Variables | Classification | Study group (N=30) | | Control group (N=30) | |
|---|---|---|---|---|---|
| | | **Freq.** | **%** | **Freq.** | **%** |
| Degree of Hepatic Cirrhosis | **Class A** | 7 | 23.3 | 10 | 33.3 |
| | **Class B** | 12 | 40.0 | 15 | 50.0 |
| | **Class C** | 11 | 36.7 | 5 | 16.7 |

**N: number, %: percentage, Freq.: frequency**

This table shows the majority of both study sample (study and control) group are **class B** and they accounted (40.0%, 50.0%), (23.3%, 33.3%) are **class A** and (36.7%, 16.7%) of them are **class C** respectively.

**Table 5:** Patients Responses regarding general Knowledge about liver Cirrhosis for study and control group (pretest)

| No. | Items | Pretest (study) | | | Pretest (control) | | |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Level | Mean | SD | Level |
| 1 | The liver is located in the upper right of the abdominal cavity below the diaphragm and weighs approximately 1.5 kg | 1.33 | .479 | L | 1.46 | .507 | **M** |
| 2 | The liver consists of two main lobes, the right and left lobes | 1.13 | .345 | L | 1.00 | .000 | L |
| 3 | The liver plays an important role in removing toxic substances such as removing alcohol from the blood before circulating to the rest of the body | 1.13 | .345 | L | 1.03 | .479 | L |
| 4 | The liver is able to perform its functions almost normally with 25% of its energy, which has the ability to maintain its functions even after the loss of 75% of its functional capacity | 1.16 | .379 | L | 1.36 | .490 | M |
| 5 | The liver is responsible for maintaining normal rates of blood sugar | 1.10 | .305 | L | 1.00 | .466 | L |
| 6 | The liver is able to repair damaged cells and regenerate itself | 1.20 | .406 | L | 1.40 | .498 | M |
| 7 | The liver is responsible for the clotting factor in the blood, which helps in the formation of factors that help in the process of blood clotting | 1.16 | .379 | L | 1.03 | .479 | L |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 8 | The liver stores energy that can be used quickly when the body needs it | 1.10 | .305 | L | 1.03 | .479 | L |
| 9 | Cirrhosis of the liver is the destruction of normal liver cells and is replaced by fibrous scar tissue and leads to disorders of important liver function | 1.16 | .379 | L | 1.06 | .490 | L |
| 10 | One of the causes of liver cirrhosis is frequent alcohol ingestion, viral hepatitis B and C, fatty liver, and obstruction of the bile duct | 1.30 | .466 | L | 1.03 | .507 | L |
| 11 | Symptoms of early liver cirrhosis Anorexia, vomiting and nausea, weight loss and wasting appearance | 1.26 | .520 | L | 1.33 | .479 | L |
| 12 | Cirrhosis of the liver suffers from the lack of many vitamins and minerals | 1.20 | .406 | L | 1.06 | .490 | L |
| 13 | One cause of malnutrition is liver cirrhosis | 1.10 | .305 | L | 1.26 | .449 | L |
| 14 | Eating healthy balanced food is one of the most important things that help the liver to renew its cells damaged by new liver cells | 1.10 | .305 | L | 1.60 | .490 | M |
| 15 | The disease caused by vitamin K deficiency is hemorrhage | 1.06 | .253 | L | 1.40 | .498 | M |
| 16 | The liver cirrhosis patient needs of the protein daily at 0.8-1.5 g / kg from body weight. | 1.00 | .000 | L | 1.23 | .430 | L |
| 17 | The liver cirrhosis patient needs of calories daily by 2000-3000 calories. | 1.00 | .000 | L | 1.03 | .430 | L |
| | Total means | 19.53 | 2.445 | | 19.55 | 6.31 | |
| | Mean of means | 1.1 | | L | 1.1 | | L |

**1 -1.33= low level (L), 1 – 1.67= Middle level (M), 1.68 – 2 = High level (H)**

This table summarize pretest the patients responding regarding general knowledge about anatomy and physiology of liver cirrhosis in both ( study & control ) group that are done by using mean of score(MS), standard deviation (SD) , and mean of mean (MM), we can observe low knowledge which have mean of mean in both study group ( 1.1, 1.1).

**Table 5:** Patients Responses regarding general Knowledge about liver Cirrhosis for study and control group (posttest)

| No. | Items | Posttest (study) | | | Posttest (control) | | |
|---|---|---|---|---|---|---|---|
| | | Mean | SD | Level | Mean | SD | Level |
| 1 | The liver is located in the upper right of the abdominal cavity below the diaphragm and weighs approximately 1.5 kg | 1.70 | .466 | H | 1.46 | .507 | **M** |
| 2 | The liver consists of two main lobes, the right and left lobes | 1.56 | .501 | M | 1.00 | .000 | L |
| 3 | The liver plays an important role in removing toxic substances such as removing alcohol from the blood before circulating to the rest of the body | 1.46 | .507 | M | 1.03 | .479 | L |
| 4 | The liver is able to perform its functions almost normally with 25% of its energy, which has the ability to maintain its functions even after the loss of 75% of its functional capacity | 1.50 | .508 | M | 1.36 | .490 | M |
| 5 | The liver is responsible for maintaining normal rates of blood sugar | 1.46 | .507 | M | 1.00 | .466 | L |
| 6 | The liver is able to repair damaged cells and regenerate itself | 1.53 | .507 | M | 1.40 | .498 | M |
| 7 | The liver is responsible for the clotting factor in the blood, which helps in the formation of factors that help in the process of blood clotting | 1.56 | .501 | M | 1.03 | .479 | L |
| 8 | The liver stores energy that can be used quickly when the body needs it | 1.50 | .508 | M | 1.03 | .479 | L |
| 9 | Cirrhosis of the liver is the destruction of normal liver cells and is replaced by fibrous scar tissue and leads to disorders of important liver function | 1.56 | .504 | M | 1.06 | .490 | L |
| 10 | One of the causes of liver cirrhosis is frequent alcohol ingestion, viral hepatitis B and C, fatty liver, and obstruction of the bile duct | 1.60 | .498 | M | 1.03 | .507 | L |
| 11 | Symptoms of early liver cirrhosis Anorexia, vomiting and nausea, weight loss and wasting appearance | 1.53 | .507 | M | 1.33 | .479 | L |
| 12 | Cirrhosis of the liver suffers from the lack of many vitamins and minerals | 1.56 | .504 | M | 1.06 | .490 | L |
| 13 | One cause of malnutrition is liver cirrhosis | 1.43 | .504 | M | 1.26 | .449 | L |
| 14 | Eating healthy balanced food is one of the most important things that help the liver to renew its cells damaged by new liver cells | 1.46 | .507 | M | 1.60 | .490 | M |
| 15 | The disease caused by vitamin K deficiency is hemorrhage | 1.46 | .507 | M | 1.40 | .498 | M |
| 16 | The liver cirrhosis patient needs of the protein daily at 0.8-1.5 g / kg from body weight. | 1.43 | .504 | M | 1.23 | .430 | L |
| 17 | The liver cirrhosis patient needs of calories daily by 2000-3000 calories. | 1.43 | .504 | M | 1.03 | .430 | L |
| | Total means | 25.8 | 7.48 | | 19.55 | 6.31 | |
| | Mean of means | **1.5** | | **M** | **1.1** | | **L** |

**1 -1.33= low level (L), 1 – 1.67= Middle level (M), 1.68 – 2 = High level (H)**

This table summarize posttest the patients responding regarding general knowledge about anatomy and physiology of liver cirrhosis in both ( study & control ) group that are done by using mean of score(MS), standard deviation (SD) , and Mean of Mean (MM), we can observe improvement in knowledge in study group which have mean of mean (1.5)and low knowledge in control group,which have mean of mean ( 1.1).

**Table 6:** Association between patient's knowledge regarding their level of education

| | level of education | Sum of Squares | df | Mean Square | F | Sig. P ≤ 0.05 |
|---|---|---|---|---|---|---|
| Patients knowledge about anatomy, physiology of liver and liver cirrhosis | Between Groups | 169.285 | 5 | 33.857 | .559 | .730 N.S. |
| | Within Groups | 1453.515 | 24 | 60.563 | | |
| | Total | 1622.800 | 29 | | | |

**d.f: degree of freedom, F: , sig. significant , p.: probability value , ≤ : less than or equal, N.S: non-significant**

This table summarize the association among level of education and patient knowledge about liver cirrhosis , anatomy and physiology of the liver, that are done by using one way ANOVA, we can observe non- significant relationship between level of education and liver cirrhosis , anatomy and physiology of the liver at **P value ≤0.05.**

## 4. Conclusion and Recommendation

According to the findings of the present study, the researcher arrives at the following conclusion: Liver cirrhosis mostly occurs in male than in female. The study confirms that the hepatic cirrhosis mostly common occurs among patients in urban residential area more than in rural. Most of the study samples are married. The vast majority of the hepatic cirrhosis patients are housewife. The vast majority of the hepatic cirrhosis patients in case group primary school and in control group can read & write. The vast majority of the participants are having moderate monthly income in both groups. The study confirm that the cause hepatic cirrhosis autoimmune mostly common in case group and hepatitis B virus in control group. Hepatic cirrhosis associated with many symptoms that involve all boy system. The study confirms that the most of the study sample class B regards severity of hepatic cirrhosis according to child Pugh score. The study indicates that the application of the instructional program concerning patient's knowledge about anatomy, physiology of the liver, hepatic cirrhosis for patients with hepatic cirrhosis showed an improvement in patient's knowledge in case group and stay without change in control group.The level of educationhas a non-significant relationship to the patient's knowledge. The study recommended intensive comprehensive wide population-based studies could be conducted to enhance the hepatic cirrhosis patient's knowledge about liver cirrhosis disease.

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