
Knowledge of Hepatitis C Infection among the medical students of Lahore general hospital Lahore.

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ALLAH ALMIGHTY Whose blessings are uncountable And Our beloved Parents and Our supportive Teachers

ABSTRACT

Introduction:

Hepatitis means inflammation of liver. Hepatitis C is a curable disease caused by a virus that can infect the liver. The virus called hepatitis C can cause lifelong infection; fibrosis, cirrhosis, liver cancer and death. There are two phases of hepatitis c infection-acute and chronic. Acute means a new HCV infection that is less than six months old. More than six months infection is chronic infection”).It is one of the leading causes of death in Pakistan. In Pakistan about 10 million people are affected with hepatitis C which is about 6 percent of the total population.

Material and Methods:

A descriptive cross sectional study was done. 100 people were interviewed through simple random sampling technique. Closed ended questionnaire was used as data collection tool after getting their consent. Data was collected

by 5 team members. Data was analyzed and compiled through SPSS software version-22.

Results:

100 people were questioned about the knowledge and awareness of Hepatitis C. Among those 20% people were not aware of Hepatitis C. 80% people were aware of Hepatitis C.

Conclusion:

Results show that majority of people knows what Hepatitis C is and they are aware of Hepatitis C.

Key words: Hepatitis C, medical Student, Lahore.

INTRODUCTION

Hepatitis C is a contagious liver disease that results from infection with the Hepatitis C virus. It can range in severity from a mild

illness lasting a few weeks to a serious lifelong disease it is among the most common virus that can effects the liver and it has been shown to be a major cause of parentally transmitted hepatitis. Hepatitis C is found worldwide. The most affected regions are Africa and Central and East Asia. Depending on the country, hepatitis C infection can be concentrated in certain populations (for example, among people who inject drugs) or in general populations. There are multiple strains (or genotypes) of the HCV virus and their distribution varies by region. There is no vaccine for hepatitis C, therefore prevention of HCV infection depends upon reducing the risk of exposure to the virus in health-care settings, in higher risk populations, for example, people who inject drugs, and through sexual contact (Wright, 2014).

The following list provides a limited example of primary prevention interventions recommended by WHO,hand hygiene, including surgical hand preparation, hand

washing and use of gloves, safe handling and disposal of sharps and waste, provision of comprehensive harm-reduction services to people who inject drugs including sterile injecting equipment, testing of donated blood for hepatitis B and C (as well as HIV and syphilis) training of health personnel(Park, 2015).

Hepatitis is a general term that means inflammation of liver. The ancient Greek word Hepa refers to the liver and the Latin word Itis means inflammation. Inflammation is the local reaction of the body in this case the liver in response to a damaging agent. Hepatitis C is a curable disease caused by a virus that infects the liver. The virus called hepatitis C can cause lifelong infection, fibrosis, cirrhosis, liver cancer and death. There are two phases of hepatitis c infection-acute and chronic.Acute means a new HCV infection that is less than six months old. More than six months infection is chronic infection.A number of different agents can cause hepatitis C, including infective

agents(virus, bacteria),chemical poisons, drugs and alcohol or an immune response towards organ itself (autoimmune hepatitis).Hepatitis C leads to a serious permanent liver damage, and sometimes acute liver failure and death. Chronic persistence of the virus is major cause of cirrhosis death, as well as liver failure or liver cell cancer. Viral hepatitis caused by the hepatitis B and C may leads to long term persistent infections and chronic liver disease with potentially lethal consequences(Dr. Koop, 2016).

The preliminary results demonstrate cognitive impairment that is unaccounted for by depression, fatigue or a history of IVDU in patients with histologically mild HCV infection. The findings on MRS suggest that a biological cause underlies this abnormality. Patients with chronic hepatitis c virus infection frequently report fatigue lassitude, depression and a perceived inability to function effectively. Patients exhibit low quality of life scores that are independent of disease severity so HCV has direct effect on the central nervous system

resulting in cognitive cerebral metabolite abnormalities. 27 viremic patients with biopsy have proven it as a mild hepatitis according to the HCV(Fonton et al., 2002).

Research data suggest a moderate to high prevalence of hepatitis B and C(Jan 1994-Sep 2007)to estimate the prevalence of active hepatitis and chronic hepatitis C in Pakistan, analyzing data separately for the general and high risk populations and for each of the four provinces. Pakistan carries one of the world's highest burdens of chronic hepatitis and mortality due to the liver failure and hepatocellular carcinomas. However national level estimates of the prevalence of and risk factors for hepatitis are currently not available(Asad et al., 2009).

The objective of this study is to measure the knowledge and awareness regarding Hepatitis C among the medical students. The findings from various studies indicates that the patient delayed may be influenced by several factors, namely lack of knowledge, lack of awareness of

significance of symptoms, negative social attitudes or combination of these factors. This study will help to describe the problems regarding Hepatitis C in Pakistan and their effects on medical students. It will help to increase the knowledge and apprehension of medical students and increase their awareness regarding this matter. This study will help to take measures to decrease the Hepatitis C and regarding problems in Pakistan and help to educate the medical students of Avicenna Medical College regarding this disease. There have no such study been done in this region.

LITERATURE REVIEW

HISTORICAL BACKGROUND

Since the discovery of hepatitis C virus (HCV) in 1989 as the causative agent of post-transfusion non-A non-B hepatitis. The Centers for Disease Control and Prevention and Chiron came together to identify the hepatitis C (HCV) virus. There isn't a vaccine for HCV at this time. HCV Infection occurs throughout the world, and up until the introduction of anti-HCV screening tests for blood donors,

introduced in 1990/1991 in Europe and the United States, it has represented the major cause of transfusion-associated hepatitis. The incidence of HCV on a global scale is not well known, because acute infection is generally asymptomatic (Khalid et al, 2008).

EPIDEMIOLOGY

An estimated 130–200 million people worldwide are infected with hepatitis C. In 2013 about 11 million new cases occurred. It occurs most commonly in Africa and Central and East Asia. About 343,000 deaths due to liver cancer and 358,000 deaths due to cirrhosis occurred in 2013 due to hepatitis C. The existence of hepatitis C – originally identifiable only as a type of non-A non-B hepatitis – was suggested in the 1970s and proven in 1989. Hepatitis C infects only humans and chimpanzees. (Franciscus, 2015).

HCV is parenteral transmitted and has been found in every part of the world where it has been sought. Prior to donor screening for anti-HCV (1992), HCV was the most common cause of post-transfusion hepatitis worldwide,

accounting for about 90% of this disease in the USA. Studies carried out in the 1970s suggested that about 7% of transfusion recipients developed NANB Hepatitis, and that up to 1% of blood units might contain the responsible virus. The introduction of anti-HCV screening has reduced the transmission by up to almost 100%. Currently in the USA, HCV accounts for about 20% of acute viral hepatitis cases, of which less than 5% are associated with blood transfusion.

The prevalence of anti-HCV is highest in injecting drug users and hemophiliac patients (up to 98%), highly variable in hemodialysis patients (<10%-90%), low in heterosexuals with multiple sexual partners, homosexual men, healthcare workers and family contacts of HCV infected persons (1%-5%), and lowest in volunteer blood donors (0.3%-0.5%).

In the general population it varies (0.2%-18%). Areas of higher prevalence include countries in the Far East, Mediterranean countries and certain areas in Africa and Eastern Europe.

WHO estimates that about 3% of the world's population has been infected with HCV and that some 170 million are chronic carriers at risk of developing liver cirrhosis and/or liver cancer. These chronic carriers represent a reservoir sufficiently large for HCV to persist.

Globally, 2.2% of the world's population is suffering from hepatitis C virus (HCV). The disease is becoming a major health problem of developing countries, including Pakistan that has the second highest prevalence rate of hepatitis C ranging from 4.5% to 8%. All five hepatitis viruses are present in Pakistan. It is estimated that nearly eight million people in the country have been exposed to hepatitis C virus. Hepatitis C virus is prevalent in certain districts of Baluchistan, Punjab and Sindh due to the existing hepatitis C cases and low coverage of hepatitis C treatment in this high risk population. Several studies indicate that the rate of positivity for HCV is much higher in rural areas than the peri-urban areas of Pakistan (Janjua, 2006)

The increasing HCV epidemic is likely to progress to a considerable increase in disease burden over the coming years. A multidisciplinary approach will be needed to adopt suitable technical methods, increase awareness in both lay and medical communities, and produce more effective identification and treatment of HCV patients. The medical community needs to continue research aimed at improving understanding of predisposing factors, the clinical course of the disease, and the best strategies for management, so that in future outbreaks, novel therapy can be targeted to high-risk population(Nadeem et.al., 2008).

HCV Infection occurs throughout the world, and up until the introduction of anti-HCV screening tests for blood donors, introduced in 1990/1991 in Europe and the United States, it has represented the major cause of transfusion-associated hepatitis. The incidence of HCV on a global scale is not well known, because acute infection is generally asymptomatic. 100As many as 2 to 4 million persons may be chronically infected in the United States, 5 to

10 million in Europe, and about 12 million in India, and most do not know they are infected. About 150 000 new cases occur annually in the US and in Western Europe, and about 350 000 in Japan. Of these, about 25% are symptomatic, but 60 to 80% may progress to chronic liver disease, and 20% of these develop cirrhosis. Most European countries report a prevalence of HCV in the general population of between 0.5 and 2%. WHO estimates that about 3% of the world's population has been infected with HCV and that there are more than 170 million chronic carriers who are at risk of developing liver cirrhosis and/or liver cancer (Fujimura et.al., 1996).

MECHANISM OF TRANSMISSION

The hepatitis C virus is a blood borne virus. It is most commonly transmitted through:

- Injecting drug use through the sharing of injection equipment. The reuse or inadequate sterilization of medical equipment especially syringes and needles in healthcare settings; and the transfusion of unscreened blood and blood products.
- HCV can also be transmitted sexually and can be passed from an infected mother to her baby; however these modes of transmission

are much less common. Hepatitis C is not spread through breast milk, food, water or by casual contact such as hugging, kissing and sharing food or drinks with an infected person (John et al, 2009).

CLINICAL FEATURES AND DIAGNOSIS

According to WHO, many people (70-80%) with Hepatitis have no symptoms. But we can notice these:

- Jaundice (a condition that causes yellow eyes and skin, as well as dark urine)
- Stomach pain
- Loss of appetite
- Nausea
- Fatigue

Diagnosed by PCR and ELISA tests.

PREVENTION

Primary prevention

Early and appropriate medical management including antiviral There is no vaccine for hepatitis C, therefore prevention of HCV infection depends upon reducing the risk of exposure to the virus in health-care settings

and in higher risk populations, for example, people who inject drugs, and through sexual contact. The following list provides a limited example of primary prevention interventions recommended by WHO :

- Hand hygiene: including surgical hand preparation, hand washing and use of gloves.
- Safe handling and disposal of sharps and waste.
- Provision of comprehensive harm-reduction services to people who inject drugs.
- Testing of donated blood for hepatitis B and C (as well as HIV and syphilis).
- Training of health personnel.
- Promotion of correct and consistent use of condoms.

Secondary and tertiary prevention

For people infected with the hepatitis C virus, WHO recommends:

- Education and counseling on options for care and treatment.
- Immunization with the hepatitis A and B vaccines to prevent confection from these hepatitis viruses and to protect their liver;
- Early and appropriate medical management including antiviral therapy if appropriate.
- Regular monitoring for early diagnosis of chronic liver disease (WHO,2015)

TREATMENT

Hepatitis C treatments have changed a lot in recent years. In January 2016, the FDA gave approval to a once-daily pill combination of elbasvir and grazoprevir called Zepatier. It has been shown to have the ability to cure the disease in almost 100% of those treated. It follows the success of another once-daily treatment called Harvoni that cures the disease in most people in 8-12 weeks. Harvoni combines two drugs: sofosbuvir (Sovaldi) and ledipasvir. In clinical trials, the most common side effects in both drugs were fatigue and headache (FDA, 2016)

Once-daily pill combination of elbasvir and grazoprevir called Zepatier. It has been shown to have the ability to cure the disease in almost 100% of those treated other anti-virals are under trials (Dr. Aqeel, 2011).

OBJECTIVES

The objectives of this study were to;

1. To determine the level of Knowledge attitude and practice about Hepatitis C infection among

medical students of Avicenna Medical College Lahore.

2. To prevent the medical student of Avicenna Medical College from Hepatitis C infection.
3. To encourage medical students to take part in awareness related activities, seminars, and camps related to hepatitis C infection.

OPERATIONAL DEFINITIONS

Hepatitis c is a chronic liver disease caused by hepatitis c virus. Hepatitis C is also said to be blood borne virus.

Material and Methods

Study Design: Descriptive cross sectional study was done.

Study Setting: Medical students of Avicenna Medical College.

Sample size: Study size had been estimated using WHO software S size and by using formula of estimating a population proportion with specified relative precision. At confidence level of 95% with anticipated population proportion of 70% and relative precision of 10%. The minimum sample size taken was 100.

Sampling Technique: Random sampling was done.

Sample Selection:

a. **Inclusion Criterion:** Medical students of Avicenna Medical College.

b. **Exclusion Criterion:** Medical students of all other medical collages.

Method and Statistical Analysis of results:

1. The results obtained were recorded on the respective questionnaires.
2. The completed questionnaires were entered into the computer using SPSS version 22.
3. Data analysis was done by using the same software.
4. Data was analyzed for description i.e. for continuous variables like age and presented in the form of tables, graphs and diagrams.
5. Confidence limits (95%) were calculated using standard error of mean and standard error of proportion for continuous and categorical variables respectively. Z-Test was used to

determine the significant difference between continuous variables.

6. Chi square test was used to determine the association and significant difference between categorical independent variables and outcome variables, and to compare proportions. A level of 5 % was be used for significance testing.

RESULTS

Age frequency of population selected

for the research:

The age groups of medical students selected for research were between 19-20, 21-22 and 23-24 years. This also ensures that medical students of Bedian road, Lahore is targeted who are more prone to get the infections of hepatitis C. The data collected as tabulated at **table 1** and is diagrammatically represented in **figure 1& 2** in form of bar and pie chart respectively.

Table 1:

Age of Population Selected For the Research

Respondents Age				
	Frequency	Percent	Valid Percent	Cumulative Percent

Age between 19-20	35	35.0	35.0	35.0
Age between 21-22	29	29.0	29.0	64.0
Age between 23-24	36	36.0	36.0	100.0
Total	100	100.0	100.0	

Figure 1:

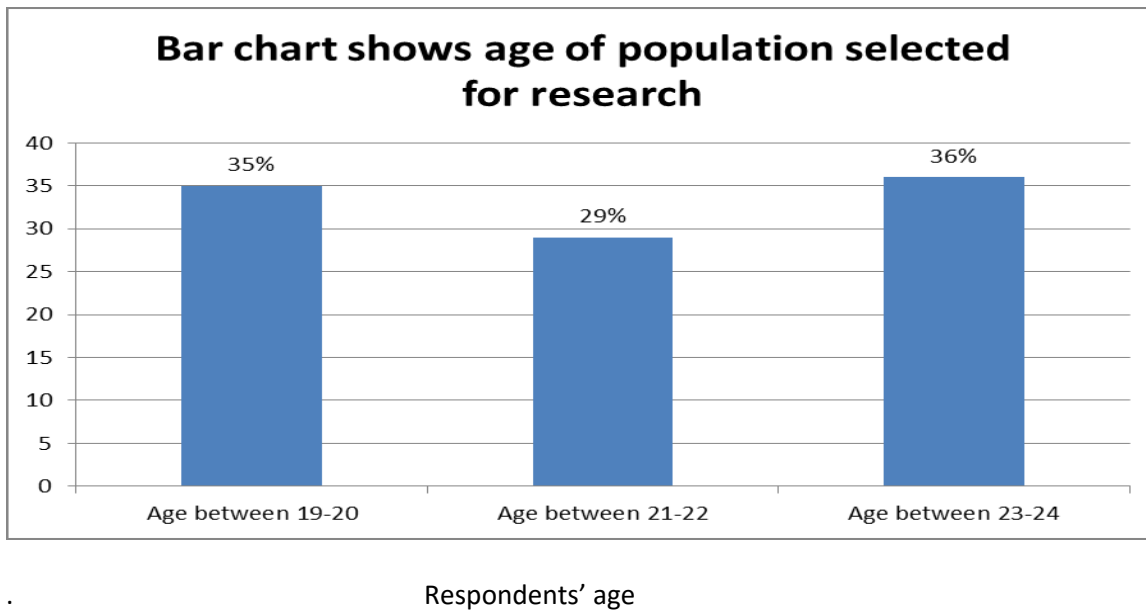
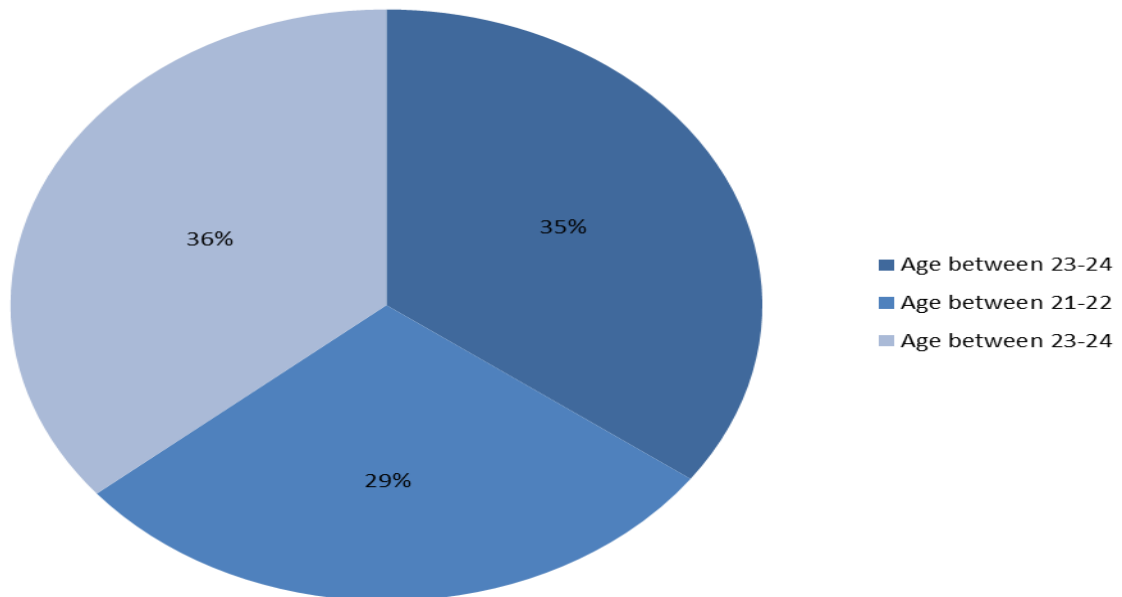


Figure 2:

Pie chart shows age of population selected for research



Respondents' age

Respondents sex

	Frequency	Percent	Valid Percent	Cumulative Percent
Female	31	31.0	31.0	31.0
Male	69	69.0	69.0	100.0
Total	100	100.0	100.0	

Gender percentage of representing population:

females as tabulated in **table 2** and also represented in **figure 3 & 4**.

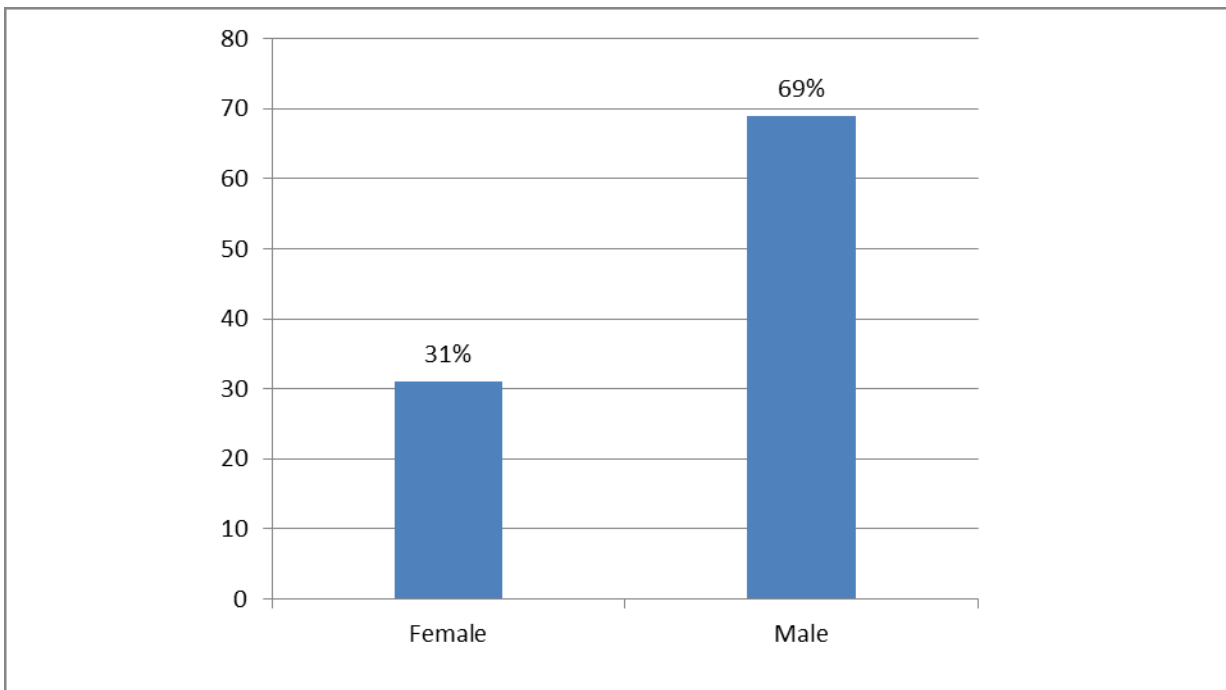
Since 100 medical students of Avicenna Medical College were selected and interviewed among which 69% were males and 31% were

Table 2:

Gender percentage of representing population

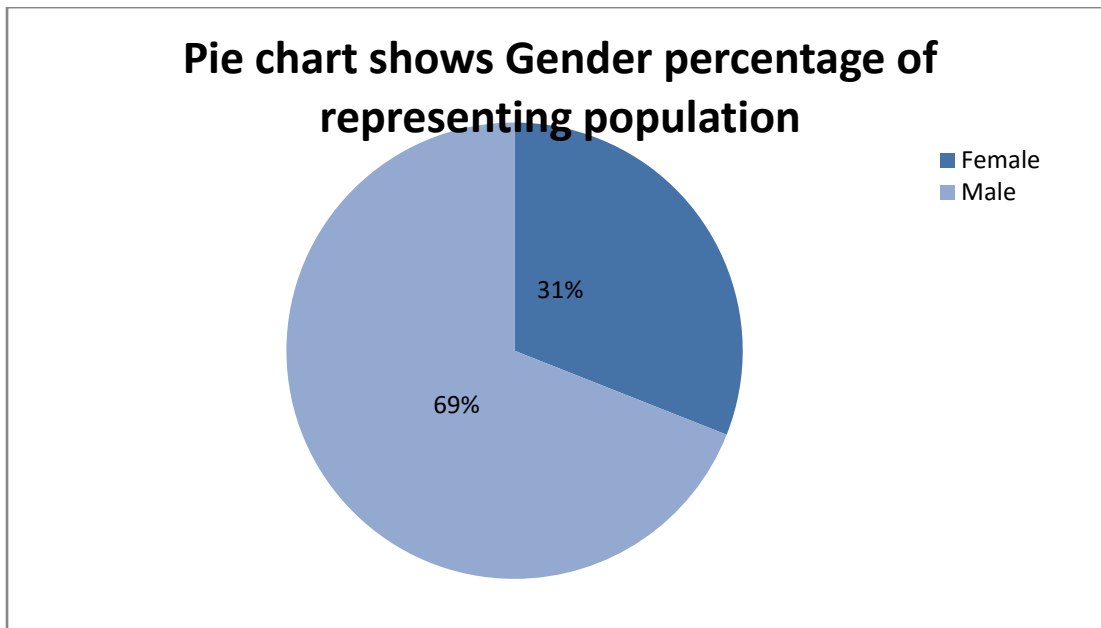
Figure 3:

Bar chart showing Gender percentage of representing population



Respondent sex

Figure 4:



Respondent sex

The percentage of people who were aware of Hepatitis C:

Through interviewing and collection of results from 100 medical students interviewed, the

number of medical students who were aware of hepatitis C infection was identified as arranged in **table 3**. The frequency was than represented in **figure 5 & 6**.

Table 3:

Percentage of people who were aware of Hepatitis C

Figure 5:

Bar Chart showing the percentage of peoples who were aware of Hepatitis C

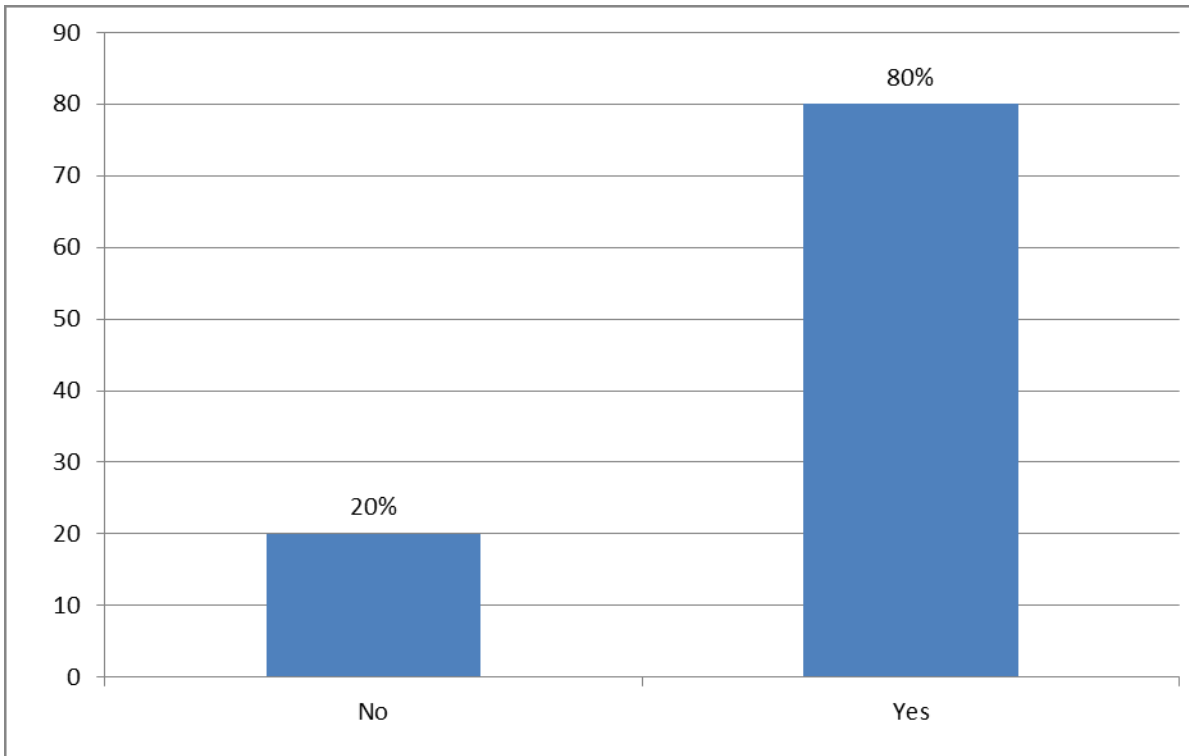
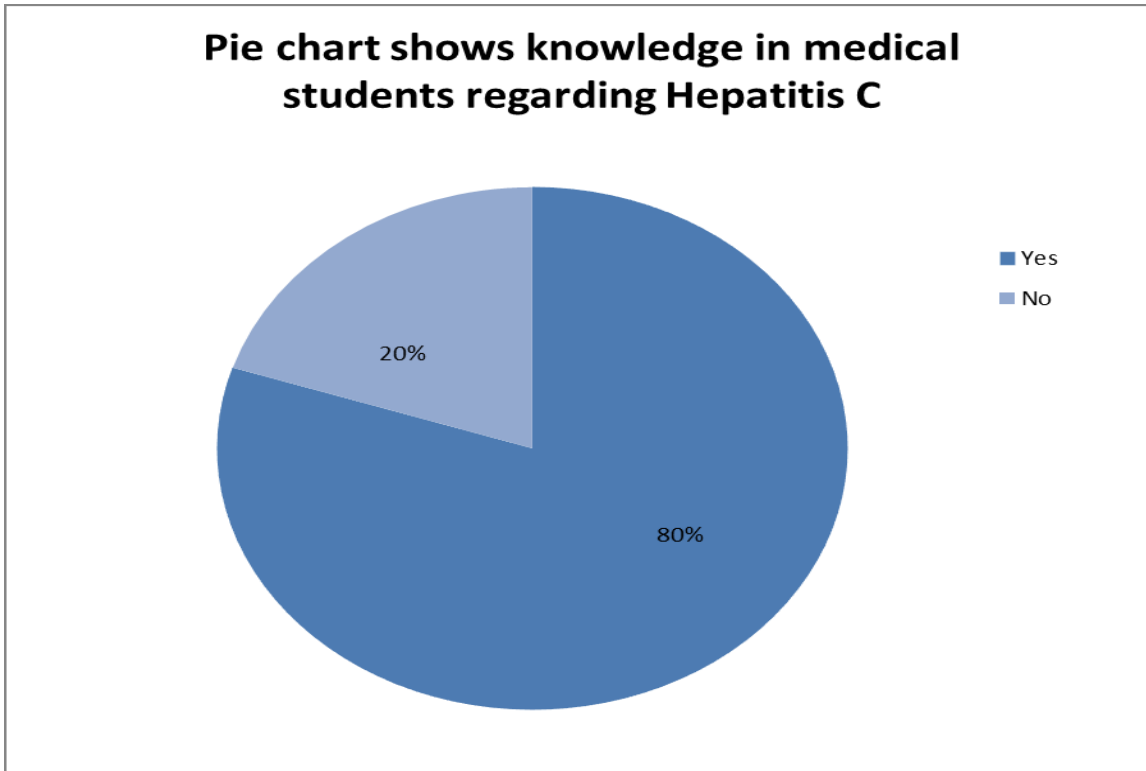


Figure 6:



ESTIMATED COST OF PROJECT AND ITEM USED

Items	Cost
Photocopies	Rs.150
Printing	Rs.350
Stationary	Rs.150
Visit Expenses	Rs.1000
Miscellaneous	Rs.150
Total	Rs.1800

DISCUSSION

Study conducted on Knowledge attitude and practice about Hepatitis C Infection among the medical students of LAHORE GENERAL HOSPITAL, Lahore. Knowledge about hepatitis C Hepatitis C virus is crucial for health care professionals' especially medical students because of the increasing prevalence of these infections. Occupational risk of these infections is well known in medical and dental workers especially during the professional training period. This accounts for one of the major reason for delivering knowledge about preventive measures and universal precautions.

Students regarded blood transfusion, syringes and needles to be an important factor for transmission of these deadly infections in this study. Accidental needle sticks are associated with the greatest risk for occupational transmission of blood-borne pathogens such as Hepatitis C virus and there is no vaccine available for prevention of hepatitis C viral infection. Still 20% students claimed the availability of a vaccine that can protect against hepatitis C infection. The unawareness about such vaccine was more profound among the pre-clinical students. 80% students surveyed knew about needle safety despite the fact that

needle pricks are one of the significant modes of transmitting hepatitis and C virus in our part of the world. Medical students frequently sustain needle stick and sharp object injuries during clinical training as is evident from studies from other parts of the world (Khizri et al, 2010).

Today's medical students work as colleagues with physicians in caring for patients. They deserve to be trained in an environment where personal safety is stressed. We found a significant difference between knowledge of pre-clinical and clinical students. In the light of our study there is a lack of awareness among the medical students entering in to the profession. It is the need of the hour to emphasize on practicing universal precautions.

Survey showed that male students were more knowledgeable about HCV than females. Regarding possible transmission routes for HCV, it is evident that most of the students knew that main spreading cause is blood

products, injection drug users and reuse of syringes as compared to other risks.

This study indicates an urgent need to initially provide knowledge and training to handle patients with different medical conditions starting in the 3rd year and further on compulsorily upgrade this knowledge every year with recent information by conducting continuing medical education programs.

In addition, some preventive measures should be taken by the management of the universities and medical students to avoid the occurrence of these problems. Students should be well educated about availability of post exposure (needle prick) management more so it should be the responsibility of the medical college or medical university to have 24 hour counseling services available for accidental needle pricks.

The following guide lines are suggested to minimize the risk of HCV and other blood-borne pathogens to medical students (1) Precaution is necessary when using needles, scalpels, and other sharp instruments or devices, so as to prevent injuries. (2) Do not recap used

needles, remove used needles from disposable syringes, bend, break, and manipulate used needles by hand. Place used disposable syringes, needles, scalpels, and other sharp items in puncture resistant containers for disposal. (3) Use protective barriers to prevent exposure to blood, body fluids containing visible blood and other fluids to which universal procedures apply. The type of protective barrier(s) should be appropriate for the procedure being performed and the type of exposure anticipated. Use gloves for performing all phlebotomy procedures. (4) Immediately and thoroughly wash hands and other skin surfaces that are contaminated with blood, body fluids containing visible blood, and other body fluids to which universal procedures apply (Sharma, 2009).

Similar results were observed in a study done in USA where 66% of primary care physicians recommended hepatitis C vaccine. More than half the students in our study did not know about post exposure prophylaxis for HIV/AIDS, which mimics the results observed in an Indian study. Despite the recommendations by the

WHO for vaccination against hepatitis B viral infections only two-thirds were fully vaccinated in our study. We, as health professionals are well aware of the dangers of the contaminated needles and the deadly diseases they can transmit. Not surprisingly, only 50% students surveyed knew about needle safety despite the fact that needle pricks are one of the significant modes of transmitting hepatitis B and C virus in our part of the world.18-21 Medical students frequently sustain needle stick and sharp object injuries during clinical training as is evident from studies from other parts of the world (Qudsia et al, 2009).

Actually, it is almost a worldwide issue, as other studies show that nearly 80% of students never, or rarely, report needle stick injuries as well. Students do not usually report their needle stick injuries. Unfortunately, contamination of students eyes and mucosa by the secretions of a patient positive for HBV and HCV was only reported by 3.7% and 0.8% of students, respectively, which may be due to lack of sufficient knowledge about possible post-exposure prophylaxis, or to their lack of interest in their own self-preservation (Ali, 2010).

There is a lack of awareness among the medical students entering into the profession. It is the need of the hour to emphasize on practicing universal precautions. In addition, some

preventive measures should be taken by the management of the universities and medical students to avoid the occurrence of these problems. The total of 267 students participated, with 117 students from pre-clinical years and 150 from the clinical years. The male female ratio was 1:2 mean age of respondents was 21 +/- 1.5 years. Majority of the students agreed that an infected person is a major source of transmitting these infections. Almost all students knew that blood transfusion was an important source of transmitting these infections.

Wearing gloves (87%) and safe disposal of sharps waste (98%) were known by the students to be the ways to protect against these infections. A significant difference was noted on comparing the knowledge between preclinical and clinical students regarding medical / surgical procedures causing these infections and also regarding the ways to protect against these diseases. . It is the need of the hour to emphasize on practicing universal precautions. In addition, some preventive measures should be taken by the management of the universities and medical students to avoid the occurrence of these problems(Siddique et.al., 2005).

CONCLUSIONS

This study revealed that in general, knowledge about Hepatitis C within the medical students

was good though not adequate. Study conducted on Knowledge attitude and practice about Hepatitis C Infection among the medical students of Avicenna Medical College, Lahore and data was analyzed through SPSS-22 software. Our study concluded that 80% students were aware of Hepatitis C and 20% students were not aware of Hepatitis C.

The present study concludes that there is less knowledge among the medical students about its mode of transmission and prevention. Moreover, all of the students were not fully vaccinated against Hepatitis B and majority of the students were not aware about the availability of post exposure prophylaxis for needle pricks. This made them more vulnerable to the disease in their professional life.

RECOMMENDATIONS

In the light of above-mentioned conclusions, following recommendations are made:

1. The level of knowledge and awareness about Hepatitis C among medical student should be improved.

2. Health staff needs to be aware of the importance of disseminating information and should take a major role to advocate the problem among medical students.
3. Short training courses for health staff should be held in a regular basis to make the health staff more familiar with the use of health education aids, materials and guidelines, and give them more confidence in implementing health education.
4. Management of the hospital and medical college should properly train or educate the students about Hepatitis C protection.
5. Medical staff should use gloves to avoid needle prick.
6. Early diagnose and treatment should be made possible.

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