University of Mosul

College of Nursing

Effectiveness of Information Booklet on Nurses Knowledge Regarding Hepatitis (B, C) Among Children in Pediatric Teaching Hospitals at Mosul City

Submitted By

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M.Sc.Thesis in Pediatrics Nursing

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2020 A.D. **1442 A.H.**

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Effectiveness of Information Booklet on Nurses Knowledge Regarding Hepatitis (B, C) Among Children in Pediatric Teaching Hospitals at Mosul City

A Thesis Submitted By

Omar Khairuldeen Khalid

To
The Council of the College of Nursing
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In Partial Fulfillment of the Requirements
For the Degree of
Master of Science
In
Nursing

Supervised by

Dr.Mazin Mahmoud Fawzi
Assistant Professor

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بسم الله الرحمن الرحيم

(قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ)

(صدق الله العظيم)

سورة البقرة (الآية ٣٢)

Supervisor Certification

This is to certify that the organization and preparation of this thesis have been made by the graduate student (**Omar Khairuldeen Khalid Al Sultan**) under my supervision at the University of Mosul in partial fulfillment of the requirements for the Degree of Master of Sciences in Nursing/pediatric nursing.

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We are the members of the examining Committee, certify that we have read this thesis entitled " **Effectiveness of Information Booklet on Nurses Knowledge Regarding Hepatitis B & C Among Children in Pediatric Teaching Hospitals at Mosul City**" by the student " **Omar Khairuldeen Khalid Al Sultan**" we have examined the student in its content and related aspects on 11 / 11 / 2020 and to our satisfaction we recommend that the thesis is acceptable and the student deserves to be awarded Master of pediatric in Nursing.

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Abstract

Background: Hepatitis B virus & hepatitis C virus (HBV & HCV) a worldwide public health diseases distressing millions of people annua ly. Millions of people are living with viral hepatitis & other millions are at risk. About (1.3) million deaths annually result of acute hepatitis infection-related liver cancer & cirrhosis. Therefore, the nurses knowledge regards HBV & HCV influences the nature & quality of care that is given to the patient.

Objectives: The study aimed to assess the nurse's knowledge regarding viral hepatitis B & C, and evaluate the information booklet efficiency on nurse's knowledge about viral hepatitis B & C, & find out the relation between the scores of post test & demographic variables selected. **Subjects & methods:** A pre experimental design of the study method was adopted, one group pre & post test. The study was carried out from (10^{th} of October 2019 to 4_{th} of February 2020), conducted among 70 nurses selected from pediatric hospitals in Mosul city. Content validity was determined by presenting the items to a panel of scientific experts. **The results:** Pre-test was conducted & the information booklet was distributed. The post test was implemented after 14 days. The data analyzed by using differential & inferential statistics. The mean score of pre-test knowledge (11.1571) the mean score of post-test knowledge (20.2857) more significant than the pre-test, recommending that the information booklet was impact of increase the knowledge of the nurse's regarding HBV & HCV. The mean enhancement in the knowledge was (9.1286) among pre-test & post-test knowledge score of the nurse's was found to be highly significant.

Conclusion: The mean knowledge of post-test score is statistically significant higher than the mean knowledge of the pre-test score so the information booklet was effective.

Recommendations: The study recommends that the self-learning module was highly impactful to increase nurse' knowledge about HBV & HCV in pediatric hospitals in Mosul city.

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List of Vocabularies

NO.	List of Vocabularies	
1-	Hepatitis B Virus	التهاب الكبد الرشحي ب
2-	Rationale	أهمية
3-	Educational program	برنامج تثقيفي
4-	Randomly	عشوائي
5-	Information Booklet	كتيب المعلومات
6-	Study group	المجموعة الدراسة
7-	Limitations	محددات
8-	Theoretical	نظري
9-	Operational	عملي / أجرائي
10-	Knowledge	معارف
11-	Reliability	الثبات
12-	Validity	مصداقية
13-	Hypothesis	الفرضيات
14-	Descriptive Statistical	الإحصاء الوصفي
16-	Inferential Statistical	الإحصاء الاستدلالي

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List of Abbreviation and Symbol

List Abbreviation and Symbol	Words
HBV	**Hepatitis B Virus**
WHO	**World Health Organization**
HCC	**Hepatocellular carcinoma**
CDC	**Centers for Disease Control and Prevention**
PCR	**Polymerase Chain Reaction**
ELISA	**Enzyme Link Immune Sorbent Assay**
MSM	**Man Sexual Man**
HCWs	**Health Care Workers**
HBsAg	**Hepatitis B surface antigen**
anti-HBsAg	**Antibody to hepatitis B core antigen**
HBIG	**Hepatitis B immunoglobin G**
DNA	**Deoxyribonucleic acid**
HIV	**Human immunodeficiency virus**
HBeAg	**Hepatitis B endogenous antigen**
anti-HBc	**Hepatitis B core antibody**
IgM	**Immunoglobin M**
IgG	**Immunoglobulin type G**
NSI	**Needle stick injury**
PEP	**Post - exposure prophylaxis**
HCV	**Hepatitis C virus**
Ups	**Universal precautions**
≤	**Less than or equal to**
et al	**And others**

CHAPTER ONE

INTRODUCTION

Chapter One

Introduction

1.1 Introduction

Viral hepatitis remains a worldwide public health concern distressing millions of individuals each year, lead to disability and death. Most people are unaware of their chronic infection with HBV or HCV, who were infected long ago (Abd & Dep, 2013). A estimated (1.3) million deaths annually due to viral hepatitis and acute infection (Demsiss, Seid, & Fiseha, 2018).

Hepatitis viruses may cause severe short-term hepatitis, and most patients survive entirely, although a small number of people can die from acute hepatitis. The infection with hepatitis A and E is typically self-limiting. Hepatitis B and C viruses can cause long-lasting hepatitis, sometimes lifelong. Hepatitis A and E infections are highly infectious and thus are transferred from contaminated water or food. They could also be propagated through eating undercooked shellfish from contaminated water. Hepatitis B virus can be spread by infected individuals by blood and other fluid of the body (semen, vaginal fluid and Saliva). The virus of hepatitis C is often spread by blood and blood products, usually, through illegal injection of medications, HCV spread from mother to infant. The virus of hepatitis D (delta) typically occurs as co-infection with HBV. "(Centers for Disease Control and Prevention, 2019)".

In spite of the access & availability of hepatitis B virus vaccines, the worldwide incidence of chronic HBV disease is projected to be 3.7% (Lok, 2016). There is about 350 – 400 million person have hepatitis B virus surface antigen "HBsAg" as a carrier & about one million die yearly due to HBV associated complications (Goldsteiin 2005; WHO 2012).

Hepatitis C virus (HCV) is an infection with high- risk global effect, WHO Organization estimate that there is around 130 – 150 million person who has chronic hepatitis C virus (HCV) with significant regional differences. In some countries, like Egypt, the incidence is >10 percent. In contrast, in Africa & the western Pacific, the incidence is higher significantly than in North America & Europe. It is projected at around 15 million (2% of adults) hepatitis C virus- positive persons in the WHO Europe area (WHO 2016).

The viruses of hepatitis B and C prevent the liver from functioning correctly and causing disorders including hepatitis B and C. HBV and HCV start with severe infection (short-term disease quickly after virus contact); however, in certain cases, the viruses persists in the body causing chronic diseases (long term diseases) and long term liver complications. Many individuals with chronic illness may have liver cancer and may require liver transplantation (Mysore & Leung, 2018).

Hepatitis B & C (HBV, HCV) are a worldwide public health problem impacting millions of persons globally. More than 2 billion individuals are worldwide infected with hepatitis B, and around (350) millions are suffering from HBV (chronic hepatitis B virus). Also, the carriers of HCV are approximately 177.5 million, lead to approximately 350,000 worldwide deaths yearly. A load of viral hepatitis (HBV & HCV) disease is maximum in the developing country & impact resources limited nations, where screening & access to medical service & management are not easily accessible (Demsiss et al., 2018). HBV and HCV can lead to acute and chronic hepatitis, causing cirrhosis, cancer of the liver or death in infected people. (ECDC, 2018).

Since 50- 80 percent of hepatitis B virus (HBV) infections contribute to chronic hepatitis, the risk of HCV infection is rising. However, an additional 57 percent of liver cirrhosis and 78 percent of

HBV or HCV infections have been reported (Joukar, Mansour-Ghanaei, Naghipour, & Hasandokht, 2017).

WHO is estimated to injure about 3 million people annually from the needle or sharp wounds; healthcare workers (HCWs), which include nurses, are ultimately at high risk for blood-borne disorders such as HBV and HCV; studies have indicated that the risk of transmitting HCW pathogens from needle stick injuries (NSI) should range around 6%-30% for HBV or around 3% and 10% for HCV (Joukar et al., 2017).

Persons who are directly involved in patient care, including doctors, clinicians, midwives, nurses, ambulance drivers, and laboratory technicians, as well as students and trainees who are indirectly involved with patient care including administrative, environmental hygiene, cafeteria, and laboratory staff, are defined as healthcare workers (HCWs), HCWs work an important role in the prevention of, response to, and management of these infectious diseases. The HCW has many opportunities to provide information to patients and members of the public and can help foster the behavior changes needed to prevent the spread of infectious diseases. Studies from other countries suggest that a lack of knowledge and negative attitudes among HCWs may serve as barriers to provide adequate health education and disease management of these infectious diseases (Mtengezo et al., 2016).

In the control and prevention of disease and especially among nurses' workers, awareness of hepatitis C virus infection is important. According to a report undertaken by (El Ayyat et al . 2000), nurses required instruction on hygiene in hands, preventing traditional syringe punches to avoid HBV and HCV. The nurses' knowledge about hepatitis C and the use of prevention steps was insufficient before the training system (Mohamed & Wafa, 2011).

Nurses are at significant hazard of exposure to patient blood & bodily fluids in their occupational environment (Mustafa Wahab & Taha,

2016). Wounds result from sharp tools & splashes of blood & body fluids put nurses at high risk for numerous blood-borne infections, including hepatitis B & C (Sreedharan et al., 2010).

Knowledge of preventive strategies plays an essential role in controlling infection; knowledge of the nursing staff on prevention strategies contributes to the availability of this information to other populations who are in touch with them in their everyday practices. In action, safety steps for hepatitis C control, for instance, hand washing, wearing gloves, face mask and surgical coat and recapping the needless (Mohamed & Wafa, 2011).

HBV and HCV infections remain a main worldwide health problem for humanity, even after many studies regard plans and programs to prevent transmission (Askarian et al., 2011). Also, 95% of hepatitis B can be controlled by the HBV vaccine and became the first major human cancer vaccine (WHO, 2013).

Before the widespread HBV vaccinations of healthcare workers, viral transmission from patients to health workers like nurses were widespread (Shepard et al., 2006). Nurses are at great hazard of exposure to human blood and body fluids in their occupational environment. (Mustafa Wahab & Taha, 2016).

Sharps injuries & needle sticks characterize a highly significant danger among nursing members. Studies found that nurses who tolerate the burden of high needle stick injury (Smith *et al.*, 2006).

Follow comprehensive protections are simple preventive techniques that reduce the risk of spreading blood-borne pathogens over blood and body fluid exposure between patients and nurses (Chan et al., 2002).

Health care staff knowledge about hepatitis B & C & transmission & preventive measures in hospitals & in the community will interrupt this disease's spread (Ghahramani et al., 2006; Kerbleski, 2005).

Such a deficit in knowledge of risk awareness needs to call for worry across all individuals seeing that healthcare workers get a high risk of infection with HBV & HCV because of there elevated repeated exposure to blood or other body fluids combined with the rising infectiousness of HBV & HCV (Bhat et al., 2012).

Knowledge of medical staff and nurses about safety measures against hepatitis B and C is critical in mitigating the health effects and infections among healthcare workers. (Paudel et al., 2012).

Universal knowledge about the protection of HBV and HCV is necessary to reduce infections between health workers (Othman et al., 2013).

1.2 Rationale of the study

The blood and body fluid from patients are highly dangerous for those who work with them. Health practitioners worldwide are becoming increasingly concerned (Buowari, 2012). Inside a hospital environment, the patient-to-patient transmission of HBV is the highest risk, accompanied by the patient to health care workers, and finally health care workers to patient infection (Viral Hepatitis prevention board, occupational exposure to the body fluids due to percutaneous injury (Blood splash and other fluid) into the mouth, nose or eyes or body contact with non-intact skin (David and Famurewa, 2010; Oguntona et al., 2010; Vas et al., 2010). according to study of Mustsfa Wahab & Taha, 2016 there are Lack of nurse‘s knowledge in general information regard to hepatitis B virus before the implementation of the educational program in pre-test, also we did assessment needs of nurse's knowledge to assess weak point of nurse's knowledge regard HBV & HCV, finding was inadequate knowledge in many aspects, health care workers, especially the nursing staff, are prone to needle stick injuries (Mangasi, 2009). According to the Centre for Disease Control, 500-600 Health care workers (HCWs), including nursing staff, are hospitalized annually due to

exposure to blood products, of which more than 200 develop chronic hepatitis (Jadoon et al.,2009). According to (Prüss-Ustün et al., 2005), OSHA (occupational Safety and Health Administration) about 5.6 millions American HCWs are at hazard of occupational exposure to bloodborne pathogen, and it has also projected that 800,000 NSIs appear each year in hospitals in the United States. The WHO has estimated that, worldwide, 66, 0 instances of HBV infection and 261 HBV-related deaths among HCWs, which includes nurses, are prompted through contaminated sharps accidents each year (Aspinall et al., 2011).

1.3 Statement of the problem.

Effectiveness of Information Booklet on Nurses' Knowledge Regarding Hepatitis B & C among Children at Pediatric Teaching Hospitals in Mosul City.

1.4 Objectives of the study.

The current study aims are:

1. To assess the nurses' knowledge regarding viral hepatitis among nurses (pre-test).

2. To evaluate the effectiveness of information booklet on nurses' knowledge regarding viral hepatitis among children (post-test).

3. To find out the relationship between the pre and post test scores & selected socio-demographic variables such as hospital, gender, age & level of education.

1.5 Definition of terms:

1.5.1 Effectiveness:

A.Theoretical definition

The ability to cause the expected or intended effect or result (venes , 2009)

B.Operational definition

Is the capability of producing a desired result. When something is deemed effective, it means it has an intended or expected outcome or produce a deep vivid impression

1.5.2 Information Booklet:

A, Theoretical definition

A small thin book with paper covered typically giving information on a particular subject. (oxford dictionary ,2012).

B.Operational definition

Group of paper that contain information or knowledge about some topics.

1.5.3 Nurse:

A.Theoretical definition

An individual who provide health care . the extended of participation various from simple patient care task to the most expert professional techniques necessary in acute life threatening situation. (oxford dictionary, 2012).

B.Operational definition

A person who care for sick individual and should have study in nursing fields. .

1.5.4 Knowledge:

A.Theoretical definition

Facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject. (Oxford 2012).

B.Operational definition

Its systematic information that deals with subject or issue of scientific field.

1.5.5 Hepatitis B & C virus:

A. Theoretical definition

Hepatitis B and C are diseases caused by the hepatitis B and C viruses. Hepatitis B and C stop the liver from working properly. Both Hepatitis B and C begin as acute infections (short-term illness that occurs soon after exposure to the virus), but in some people, the virus remains in the body, resulting in chronic disease (long-term illness) and long- term liver problems. Some people with chronic disease develop liver cancer, others might need a liver transplant (Mysore & Leung, 2018).

B.Operational definition

Inflammation of liver by microorganism spread via the blood and other medical or biological spread which effect the liver and other organ.

CHAPTER TWO

REVIEW OF LITERATURE

Chapter Two

Review of Related Literature

This chapter will present a review of related literature that represent aspect relevant problem underlying the present study. And it is consists of four parts.

Part (I) Historical background of viral hepatitis

2.1 Historical Overview

Hepatitis has been a major plague of humankind. The history of the discovery of causative viruses is one of the fascinating scientific adventures of this half century(Trepo, 2014). Hepatitis viruses have been identified as epidemic jaundice before and have existed until ancient civilizations. (Wong & Jain, 2014). Back in the 8th century AD the infectious aspect of the illness was feared (Ganem et al., 2010).

In the late 19th century hepatitis outbreaks among shipyard workers in Bremen and mentally mad insiders in Merzig, after vaccination against smallpox, were identified. (Compr. Textb. Hepat. B, 2011). But the Record of major civil wars from the 18th to 20th centuries, such as the American Civil War and 1st and 2nd World Wars, indicated how offensive jaundice induced troop complications and affected war tactics (Ganem et al., 2010).

Epidemiological discoveries from the study at the end of the nineteen century, and human trials in the twenty century, lead to an incremental discovery, later known as [“Hepatitis A Virus (HAV)”] and transfusion or inoculation of the blood, plasmas, or serum transmitted like an infectious hepatitis virus. (Ganem et al., 2010). The history of modern research on viral hepatitis began in the year 1963 when Nobel Prize winner Baruch S. Blumberg (1925–2011) reported for the first time

publicly on the discovery of a new antigen named Australia antigen (AuAg) (Gerlich, 2013).

Because the existence of Australia antigen was documented several years earlier in the sera of leukaemia patients, but in particular its link with HBV and hepatitis B (HBsAg) as it is now known, was not clear until subsequent research by the Blumbrg and Prince teams were carried out (Compr. Textb. Hepat.B, 2011). The virus was therefore first visualized by Dane and Almeida and their respective colleagues under the electron microscope in 1970. They identified the pathogenic form of the virus or Dane particles as well as their nucleocapsid nucleus (Compr. Textb. Hepat. B, 2011). The virus of hepatitis B (HBV) identified. More such study leading to the identification of extra hepatitis viruses (HCV, HDV, HEV, HGV). Such work provides a systematic description of the radical identification of viral hepatitis causative agents (Wong & Jain, 2014).

Part (II) Viral Hepatitis

2.2 Hepatitis

Hepatitis means inflammation of the liver. (Wright, 2016).When the liver is inflamed or damaged, its function can also be affected; (processes nutrients, filters the blood, and fights infections). Heavy alcohol use, toxins, some medications, and certain medical conditions can also cause hepatitis; but most often caused by a virus (Gust & Feinstone, 2018). Viral hepatitis is recognized as a public health problem globally (Venkatesh, 2018).

2.3 Type of Viral Hepatitis

According to global health sectors strategy on viral hepatitis 2016-2021 that performed by World Health Organization (WHO) at June 2016

there are 5 different forms of viral hepatitis (A, B, C, D, E) with different methods of transmission, affecting different populations and resulting in various medical outcomes. Whilst delivering personalized treatments for each of the viruses at the same time. But with special emphasis on hepatitis B and C because of the greater burden on public health that they pose (Health, Strategy, Ending, & Hepatitis, 2020).

Various etiological agents (Hepatitis A, B, C, D and E viruses) have been implicated that can lead to acute, chronic or sequel of chronic infection(Venkatesh, 2018). While HAV and HEV cause only acute disease with no chronic squeal, HBV, HCV and HDV cause varying degrees of chronicity and liver injury, which can progress to cirrhosis and liver cancers; and leads to significant morbidity and mortality(Kumar, Das, & Jameel, 2010).

In populations with polluted water and inadequate hygiene, viral hepatitis A and E are food- or waterborne diseases that can cause acute outbreaks. These will not result in chronic illness or a permanent liver condition, so no special diagnosis is available. Prevention ensures better sanitation, food protection and vaccination (Health et al., 2020). While the hepatitis D virus is unique in that it can replicate only in the presence of HBV; therefore, it is only found in co-infection among persons who are chronically infected with HBV (Services, 2014).

2.3.1 Viral Hepatitis B

2.3.1.1 Mode of Transmission

2.3.1Transmission of Hepatitis B

The frequency of the modes of transmission ranges greatly in certain geographical regions. In Western-Europe for example (low-prevalence

region), unprotected sexual activities are the major routes and using of IV drug, in sub Saharan Africa (high prevalence region), the perinatal infection was a primary, the horizontal transmission mode is regarded as the major, especially in early childhood transmission path through intermediate predominance areas (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2014).

A. Sexual transmission

HBV is standard across heterosexual males or females with sex with multiple partners or sex-worker, and between a male who's had sex with male (MSM) through individuals who are mostly unvaccinated. For areas of low prevalence, sexual transmission is the main path, and heterosexual encounters are equal to 40 per cent of recently diagnosed Hepatitis B virus infections in the US, MSM about 25 per cent (Daniels, Grytdal, and Wasley, 2009), 23 per cent and 32 per cent respectively in Germany;

B. Percutaneous inoculation.

An efficient form of transfer of hepatitis B virus, with a reported risk of about 30 per cent of people without "postexposure prophylaxis (PEP)" or vaccine (Deisenhamer, Radon, Nowak, & Reichert, 2006). The more significant percutaneous transmission path is the sharing of needles and syringes by people using injected drugs (PWIDs), which constitute approximately 15 per cent of recently diagnosed Hepatitis B virus infection in regions of low prevalence like Europe and the US (Daniels, Grytdal, & Wasley, 2009).

Certain possible means of percutaneous communication are exchanging razors or toothbrushes, though exact danger remains unclear.

Furthermore, the transmission of Hepatitis B virus was associated with behaviours such as acupuncture, tattooing, and body piercing. Training in public health and the use of plastic needles or devices are effective forms of avoidance (Berg, 2018).

C. Perinatal transmission.

The main mode of transmission was perinatal transmissions of hepatitis B virus in several places around the world, as well as a useful tool in keeping the infection reservoir, especially in the region of high prevalence. Even in the absence of prophylaxis, 80-90 per cent of children born to a positive mother for Hepatitis B virus antigen (HBeAg) will experience chronic HBV infection (Lee, Gong, Brok, Boxall, & Gluud, 2006). The neonatal vaccine has been shown to be extremely successful, suggesting that infection often happens at or shortly before delivery. However, the cesarean section appears to be less preventive than other diseases that transmitted vertically like HIV. The probability of infection from mother to baby is linked to the replicative hepatitis B virus rate of the mother. A strong link seems to exist between maternal hepatitis B virus DNA, in mothers, the risk of transmission with strongly replicated hepatitis B virus can be as high as 85 or 90 per cent (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2011).

At lower rates of HBV DNA, this risk is slowly declining (Zhang et al., 2012). Several reports suggest that if the mother has in mothers DNA < 105 log copies / mL, perinatal transmission is rare (Li, 2004). During the first prenatal appointment, each female must be screened for HBsAg, and this will be done later during pregnancy, if necessary (CDC, 2011). Passive-active immunization (> 90 per cent safety rate) will effectively shield newborns born to HBV positive mothers (Dienstag,

2008). HBV immunoglobulin for passive vaccination must be administered as soon as possible (through twelve hours), but it can be administered up to 7 days following birth if the mother's replicative hepatitis B virus infection is identified later. Regular immunization meets a regular protocol that is taken at 3 stages of time (10 μg at day zero, month one, and month six) (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer 2011).

Nonetheless, in 10 to 30 per cent of babies born to mothers with a level of HBV DNA greater than 106 log copies / mL, immune prophylaxis fails (Zou, Chen, Duan, Zhang, & Pan, 2012). Any hepatitis B virus infection was found in babies born to HBeAg-negative mothers that had receive HBV vaccine in a recent retrospective study, irrespective of the administration of .immunoglobulin (Zhang et al., 2014)

D. Horizontal transmission

Horizontal transmission involves the home, interfamily and child to child transfer through small breaks throughout the skin and mucous membranes, about fifty percent of infections in children cannot really be accounted for by mother to child transfer and, in some endemic areas, the incidence occurred in children aged 7 to 14 years prior to the initiation of neonatal vaccination (Papatheodoridis, Chrys, 2008)

Hepatitis b virus remains active outside of the living organism for an extended period and is biologically contagious for at least seven days (Lok et al., 2016). Even after harmful levels of HBV DNA, transmission risk in these patients was not negligible, and horizontal transfusion appear independent of the HBV-DNA level (Demirturk & Demirdal, 2014).

E. Blood transfusion.

Blood donations are regularly tested for "HBV surface antigen (HBsAg)", thus the occurrence of HBV linked to transfusion has decreased dramatically, the probability of developing post-transmission hepatitis B virus depend on factors such as prevalence and donor monitoring techniques (Berg, 2018). It is projected to be one to four blood components per million transfused in low prevalence areas (Dodd, 2000; Polizzotto, Wood, Ingham, Keller, & Squad, 2008). It is significantly higher in the high prevalence areas (approximately 1 in 20,000) (Shang, Seed, Wang, Nie, & Farrugia, 2007; Vermeulen et al., 2012).

There have been different donor testing methods, and many other countries utilize HBsAg donor testing, some, such as the US, have to use HBsAg and anti HBc, regular anti-HBc testing remain controversial because the accuracy is small and patients with approved hepatitis should be removed, testing of pooled blood sample or indeed individual sample could be further enhanced by the nucleic-acid. (Berg, 2018).

F. **Nosocomial infection**

Patient-to-patient nosocomial infection may occur from patient to medical practitioner and vice - versa. In health care facilities, Hepatitis b is known to be the most widely transmitting blood-borne infection. Despite the introduction of preventive measures (such as the use of disposable syringes and materials, sterilization of medical tools and immunization of health-care workers), recorded cases of nosocomial infections happen (Williams, Perz, & Bell, 2004; Amini-Bavil-Olyaee, Maes, Van Ranst, & Pourkarim, 2012).

Owing to compulsory vaccination, the prevalence of Hepatitis B virus infections in HCWs is smaller than in the general people (Duseja et al., 2002; Mahoney, Stewart, Hu, Coleman, & Alter, 1997). Transfer from health care workers to patients is also low, although the probability of transmitting from Hepatitis B virus positive patient to a healthcare professional tends to be greater (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2011). HBV-positive health-care employees are usually not excluded from employment. HBeAg negative healthcare professionals are not deemed contagious, while HBeAg positive health care professionals must wear dual gloves and therefore not perform other tasks, to be described separately (Gunson et al . , 2003; Cornberg et al., 2011).

HBV DNA test has been carried out in some situations since that is not always accurate due to rising and falling rates of HBV DNA, recommendations for HBV positive health care workers were drawn up and therefore should be followed in several high-income countries (Cornberg et al., 2011). The probability of HBV transmission via sharp injuries (whenever the patient is positive for HBeAg) is calculated at 1:3 (Riddell, Kennedy, & Tong, 2015). At the same time, HBV is highly contagious; during 2013 in Germany, only 24 cases of workplace infection from sharp injuries were recorded (Gesamt, 2015).

This small figure presumably applies to the high proportion of HBV-immunized healthcare employees. Depending on the history of vaccinations, prior immunization response, the seriousness of the infection and the HBV status of the triggering patient, a vaccine may be administered shortly after exposure, or as the first dose in the main course or even as a booster. The increased use of immuno-globulin is meant to give passive immunity if the person of origin is considered at elevated

risk of infection with the HBV and the receiver has not previously be properly vaccinated or is not an proven vaccine respondent (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2014).

G. Organ Transplantation

Transport of Hepatitis b was documented following organ transplants of HBsAg positive donors from extra hepatic organs (e.g., kidney, cornea) (Dickson et al., 1997). Therefore, organ donation has been tested regularly for HBsAg, the purpose of anti HBc is complicated, because it is the testing of the donors of blood, the likelihood of false positives, possible losses of up to five percent of donors in low endemic regions as well as uncertainty over organ infection , particularly extra hepatic organs, by donors who have separated anti-HBc (Dickson et al., 1997).

2.3.2. Postexposure prophylaxis

Within the case of HBV exposure, a postexposure prophylaxis is suggested for all unvaccinated people under all conditions, a passive-active immunization. As soon as possible, the current period for active postexposure prophylaxis is usually seen Twelve hours after exposure, an initial dose of passive and active vaccine must be received concurrently with one dosage HBV-immunoglobulin (HBIG) where the origin is known to be positive for HBsAg. A remaining two vaccination doses will be given between Four to 12–24 weeks. Immunized people with a reported reaction will not require prophylaxis postexposure, persons that do not have post vaccination screening will have the label anti-HB sooner than later if necessary, if the title anti-HB (< 100 IU / L) is inadequate, a second course would be needed, individuals who are reported as non-responding individuals will need two doses of HB. (Berg, 2018).

H. Needle Stick

The probability of HBV transmission after a needlestick injury from a contaminated source varies from 6 – 30 percent, whereas the risk of bite transmitting was less serious. Although the amount of HBV in the saliva of blood-borne pathogens is about one thousand to 10 thousand times less than in the blood, HBV is known to be the highest source of community-acquired injuries, as viruses that live seven days in a blood sample or longer on surfaces and equipment. (Communicable, Surveillance, Committee, & Care, 2016; Simcoe Muskoka District Health, 2014).

2.3.2 Viral Hepatitis C

2.3.2.1 Transmission of HCV

The most effective method of transmission is parenteral exposure of HCV. Most HCV infected patients in the US and Europe developed the disease by I.V medication use - and transition into the blood. The latter has been rare after blood supply screening for HCV became routine throughout the early 1990s. Many forms of parenteral infection are essential in a different area in the world. In HCV positive blood donors, the following potential routes of infection were established:

A- Injection drug use
B- Blood transfusion
C- Sex with a person who injects drugs
D- Having been in jail more than three days
E- Religious scarification
F- Having been struck or cut with a bloody object
G- Piercing

H- Immunoglobulin injection (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2011).

A. Injection drug use

The most widely reported cause of acute HCV infection was the utilization of injection drugs. The most recently acquired diseases are reported to occur in people that have ingested illegal drugs. Anti-HCV seroprevalence in groups of people who inject drugs (PWID) could be 75 percent with significant variation depends upon factors like area, risk behaviour, socio-economic status, etc. Underscore transmitting capacity by direct contact with the blood (Sutton et al., 2008).

B. Blood transfusion

Historically, a significant risk factor for HCV transmission has been blood transfusion or use of certain blood products. In certain observational studies, ten% and more of people receiving blood transfusions have been infected with HBC (Alter et al., 1989). Since the early 1990s, blood donor testing for HCV has virtually eliminated this route of transmission, donating blood are screened for anti-HCV for high income countries at least for HCV RNA. Now the risk is expected to occur from 1:500,000 to 1:1,000,000 cases (Pomper, Wu, & Snyder 2003). More than 90 per cent of patients in groups of repeatedly transferred patients like haemophiliacs were diagnosed with HCV prior testing was implemented (Francois et al., 1993).

C. Organ transplantation.

Transplant patients who accept HCV-positive organ donations have a higher chance of HCV infection, transmitting rates range between 30 to

80 per cent in various populations ((Pereira, Milford, Kirkman, & Levey, 1991; Roth et al., 1994).

D. Sexual or household contact

Popular contacts between households don't really pose a danger of transmission of HCV. Transport of HCV through sexual intercourse is rare among homosexual people, but there are no doubts that sexual infection with HCV is probable especially when sexual activities correlated with trauma are coupled with stimulants like "methamphetamine, mephendrone or crystal meth" administered in a sexual way. It seems that the threat of long-term relationships is really weak, factors that could raise the risk of hepatitis C virus infection include sex with a higher number of partners, history of infections with SDT, sexual activities associated with an increased risk of bleeding, trauma and sex without a condom. It is very much difficult to eliminate the possibility that infection occurs from risk factors apart from sexual contact (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2011).

The sexual transmission of HCV has been focused on outbreaks of cases of acute HCV in many areas through Europe and U.S among men of sex (MSM) (Boesecke et al . , 2015). Anal sex without condom, fisting, having multiple sexual partners within a short period, a recurrent sexually transmitted disease such as HIV and recreational drug use was considered as a risk factor (Danta et al., 2007; Schmidt et al., 2011).

E. Perinatal transmission

A danger of HCV perinatal transmission in positive mothers with HCV RNA is reported at 5 per cent or less (Ohto et al., 1994). This danger increases with immunocompromised in mothers co-infected with

HCV and HIV and has been identified in up to 20 percent. To date, no concrete guidelines have been made for preventing perinatal transmission (Pembrey, Newell, Tovo, & Collaborators, 2005)

F. Hemodialysis

People who take part in programmers for hemodialysis will be at a greater danger of having hepatitis C virus. The prevalence of hepatitis C virus anti-bodies in these patients is about fifteen percent, whereas, in recent years, this had decreased (Fissell et al., 2004).

G. Other rare transmission routes

Uncommon forms of percutaneous HCV transmission include infected instruments used in surgical procedures, alternative medicine procedures (e.g. scarification, cupping), getting a tattoo, and piercing of skin (Haley & Fischer, 2001).

H. Needlestick injury

After accidental needle stick injury or contact to other sharp objects, there is some possibility of hepatitis C virus transmission for health care staff. The incidence of seroconversion is typically estimated to be less than 2 percent after exposure to an HCV positive source (CDC, 2001). Data are divergent, however, and there are figure ranging from zero to ten percent (Mitsui et al., 1992, Sarrazin et al., 2010).

2.4 Breastfeeding and Viral Hepatitis B & C

2.4.1 Hepatitis B

Hepatitis B virus (HBV) spreads through contaminated blood from person to person, often by the exchange of contaminated needle or

witnessing contact with a person who is infected. This virus may be present in several fluids of the body but is infectious only when found whether in the blood, semen or saliva at high rates. Except for HAV and HEV, HBV can spread during childbirth from mother to infant. This transmission path is rare in America and Europe but is expected to happen more often in developed countries with limited health care services. However, HBV transmitting doesn't occur via milk of breast, making it utterly healthy for infant when there is a chance of hepatitis B infected blood coming in contact. For this purpose, mothers with broken or bleeding nipples must consider stopping breast feeding and replacing with a formula for infants until the nipples are recovered. Moms must start immunizing their infants with the vaccine against hepatitis B when guaranteeing that infants receive hepatitis B immune globulin during twelve-hours of conception. The vaccine for hepatitis B needs 3 doses, one at birth, the other in 2, 3, and 6 months (Daniel 2016).

All babies born to mothers diagnosed with HBV must be given immune globulin hepatitis B (HBIG) and first injection of HBV vaccine during twelve hours after birth. The 2^{nd} dose of the vaccine must be provided at 1 to 2 months old, as well as the third dose must be provided at 6 months old. After completing the vaccine sequence, the baby should be tested at 9 to 12 months old (usually at the next well child visit) to assess whether the vaccine did work and that the infant is not contaminated with HBV by exposure to the blood of the mother during the birth process. However, breastfeeding doesn't need to be postponed until the baby is fully immunized. If babies born to HBV-positive mothers receive the HBIG / HBV immunization at birth, the probability of mother-to-child transfer through breast - feeding is minimal. HBV, but anyway, spreads by contaminated blood. So if the nipples and encircling

areola of the hepatitis B virus positive mother are broken and bleeding, she will temporarily stop breastfeeding. She may convey and remove her breast milk till after her nipples are recovered to preserve her milk production while not breast - feeding. The HBV-positive mother could restart breast - feeding entirely once her nipples are no longer broken or bleeding. Suppliers may have to relate moms to lactation counselling to understand how to sustain milk supply and how to substitute human breast milk or formula with the pasteurized donor if momentarily not breastfeeding. (CDC, 2020).

2.4.2 Hepatitis C

Transmitted predominantly via a connection with infected blood, similar to HBV. Unlike HBV, however, sexual susceptibility to HCV is viewed as unusual, with the exception of certain groups at high risk. The major route of transmission of HCV is the injection of medication use, primarily the use of exchange needles and/or paraphernalia injection material. It is estimated that about one to two per cent of pregnant women has the hepatitis C virus. Transfusion occurs primarily in utero (when a mother is pregnant and prior to birth) and, depending on the viral load of the mother, and other risk factors carry a risk of around five per cent. However, there is no evidence that transmission of HCV exists as a result of breast feeding, with bottle fed and breast fed children experiencing the same chance of infection. That is why the "Centers for Disease Control and Prevention, the American Congress of Obstetricians and Gynecologists, and the American Academy of Pediatrics" all support hepatitis C virus infected mothers in breast feeding. However, as with hepatitis B, if the mother has broken or bleeding nipples, precautions must be taken, giving them time to recover before breastfeeding her child. Among mothers co infected with HIV and HCV, the one contraindication

for breast feeding is Breast feeding is presently not suggested in the United States for HIV-infected mothers as there is the possibility for transmitting, often in non - treated women or women with high HIV rates of infection (Daniel, 2016).

So there is no recorded evidence that HCV spreads by breast feeding. Having HCV-infection is therefore not a contraindication to breastfeeding. However, HCV is spread through infected blood. Therefore, if the nipples and encircling areola of the HCV positive mother are broken and bleeding, so she should temporarily stop breast feeding. She will pump and remove her breast milk before she repairs her nipples and protect her milk supply while not breast feeding. HCV positive mother can completely resume breast feeding until her nipples are no longer broken or bleeding. Providers may also have to recommend lactation support mothers to learn how to sustain milk supply and how to substitute human milk or formula with the donor if temporarily not breast feeding (CDC, 2020).

2.5 Pathogenesis of HBV and HCV

Hepatitis B virus (HBV) and hepatitis C virus (HCV) are different liver targeting and hepatocyte replicating virus. About Two billion person are infected by hepatitis B virus, and over 350 million have been chronic carriers (El – Serag & Rudolph, 2007; Beasley, Lin, Hwang, & Chien, 1981) that have more than 6 months of continuous virus and sub-virus particles in their blood. Many diseases begin at birth and are recurrent by more than 90 per cent. Although, only 5 to 10 per cent of people who are carriers of infection in adulthood experience progressive chronic liver disease (CLD), that occurs as "hepatitis, fibrosis, cirrhosis and eventually hepatocellular carcinoma (HCC)". Progression of the disease can interrupt at any point. Based on the markers and populations being tested,

the chance of developing HCC amongst carriers of CLD varies from tenfold to 100 fold more extensive comparison to healthy individuals. It is one of the nearest interactions that have been established to date between an environmental agent and cancer. There is also a complex natural history of HCV 85 percent of acute infections become chronic. Approximately 50 percent of individuals of chronic infections grow CLD, including 5 to 20% leading to cirrhosis during 5–20 year, while 1 to 2% of those patients develops HCC per year 7. Approximately 80 per cent of HCC is triggered by HBV and HCV. There are much more than 250,000 new HCC infections, and an approximate 500,000 to 600,000 yearly deaths from this infection (El – Serag & Rudolph, 2007).

The occurrence of HCC is rising, and these diseases appear to be a significant public health burden. In "the US, Europe, Egypt and Japan", more than 60 percent of HCC is correlated with HCV, approximately 20 percent is correlated with HBV, and chronic alcohol addiction adds to the remaining. In Asia and Africa, where HBV is endogenous, 60 percent of HCC is HBV related, 20 9 is HCV-related, and the remainder is distributed among many other risk factors (e.g., alcohol and aflatoxin)(Poon et al . , 2001). Therefore, it is essential to research the pathological changes of HBV and HCV-related HCC, which have since been well-defined enough to begin investigating common pathways that may be tumor specific. The aim is to encourage early biomarker development and innovative intervention techniques aimed at reducing the risk of CLD and HCC in patients with chronic infections. There are so more obstacles ahead as these viruses were removed as agents of post transfusion of hepatitis with the production of fast and responsive screening tests. However, they are often commonly transmitted through intravenous substance misuse and are often sexually transmittable to a

lesser degree (Maddrey, 2000; Smyth, Keenan, Dorman, & O'Connor, 1995).

2.6 Epidemiology

2.6.1 Epidemiology of HBV

Around one-third of the world 's population possesses serological records of prior or current hepatitis-B virus (HBV) infection (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2018). Spite of the availability of HBV vaccines, it is predicted that the overall prevalence of chronic HBV infection is 3.7 per cent (Lok et al . 2016). Including its 350 to 400 million persons bearing hepatitis B virus surface antigen-HBsAg, about one million die annually from causes linked to HBV (Goldstein et al., 2005; WHO, 2012).

As of Blumberg 's discovery of HBV in 1965, advancement has been remarkable, with immunization accessibility in the 1980s as well as the production of effective antiretroviral medications two decades later. The global burden of chronic HBV nonetheless remains significant. In different regions of the world, there's also a broad array of hepatitis B virus prevalence rates (from 0.1 per cent to 20 per cent). Low incidence regions (< 2%) make up 12 percent of the worldwide people, including "Western Europe, the U.S., Canada, Australia , and New Zealand". In these areas, the lifetime risk of infection will be less than 20 per cent. Transitional prevalence is classified as 2-7 percent, with a lifelong risk of disease of 20 to 60 percent which involves the "Mediterranean countries, Japan, Central Asia , the Middle East, and Latin and South America", comprising around 43 percent of the world's population. High prevalence regions (approximately 8 percent) involve "Southeast Asia, China and sub-Saharan Africa", in which a life-long risk of infection exceeds 60 percent. Diverse prevalence rates are likely associated with variations in

infection age, correlating with the likelihood of chronicity. With age, the risk of developing from acute to chronic HBV infection is reducing. Up to 90 percent of perinatally acquired infections will rise compared with 5 percent or less for adulthood infection (Stevens, Beasley, Tsui, & Lee, 1975; Daniels, Grytdal, & Wasley, 2009; Pan et al . , 2016).

In certain high income countries, the number of new cases HBV infections has shrunk, the more generally attributed to vaccination campaigns which can be applied (Rantala & van de Laar, 2008; Leroy & Asselah, 2015). Exact data, however, are hard to derive since many cases stay hidden owing to symptomless nature of the virus. In Germany, there were confirmed 2374 patients with acute HBV through 2014, relating to an occurrence rate of 0.9 in 100,000 inhabitant (Gesamt, 2015). In 1997 6135 cases of acute HBV were reported. Similarly, the incidence of acute hepatitis B virus in US has declined significantly over the last 2 decades (Daniels, Grytdal, & Wasley, 2009; CDC, 2011).

Since these estimates seem to be difficult due to a continually increasing migration from high to low prevalence areas (Belongia et al., 2008), because of the implementations of immunizations programs, further decline in prevalence is anticipated. In Germany, 88% among all school-starting children were fully immunized against HBV in 2013, with such a trend towards increased coverage (Poethko-Müller, Kuhnert & Schlaud, 2007; Gesamt, 2015).

Even if the frequency of acute HBV infection decreases in most cases countries, complications associated with HBV, in general, are always on the rise (Gomaa, Khan, Toledano, Waked & Taylor-Robinson, 2008; Hatzakis et al . , 2011; Zhang, Zhang, Elizabeth, & Liu, 2012).

Causes for this spike could be the delay in vaccine outcomes and the improved diagnosis rate of hepatitis B virus cases. Following the

implementation of vaccine programs, a significant decline can be observed by reflecting on the age-adjusted prevalence ratios of HBV-related occurrence. Recent results from such a large population-based randomized sample in Chinese newborn babies suggest that the occurrence of HCC in the vaccinated community was slightly lower than that of the control group, with a risk ratio of 16% (Qu et al., 2014).

2.6.2 Epidemiology of HCV

HCV is a significant global problem. According to the WHO, around the world, there were 130 To 150 billion people permanently infected with HCV, equal to 2 or 2,5 per cent of the population of the world. Regional variations are essential. The prevalence in some nations, such as Egypt, is > 10 per cent (WHO, 2016). The majority is substantially higher in Africa and the western Pacific than in Europe and North America. It's also reported that the WHO Europe region has fifteen million hepatitis C virus positive people (2 per cent of adults) (WHO, 2016).

Some individuals are affected preferentially: in most cases, the leading risk factor is the injection drug utilization. But also high-risk people who have undergone hemodialysis and people who have had blood products since 1991. HCV is the most prevalent chronic liver condition in Europe and America, with a high number of liver transplants being involved. Determining the number of new HCV infections is complicated, as most acute cases are not clinically identified. Clinically evident is less than 25 per cent of acute HCV cases (Vogel et al., 2009).

Additionally, the length of the infection can not necessarily be determined after diagnosis. Nonetheless, the number of new infections is believed to have declined considerably over the past decades. In the US, the number of new cases of HCV infection is estimated to have decreased

from about 230,000 cases per year in the 1980s to around 20,000 cases per year now (Daniels, Grytdal, & Wasley, 2009), with an additional 30,500 cases in 2014 (CDC, 2016).

Although this reduction is mostly related to reduced infections in "people who inject drugs (PWID), a likely consequence of improved injection procedures driven by the understanding of HIV transmission and also needle exchange and opioid substitution programs, the rate of HCV has stayed stable since the mid-2000s. This decline was not caused by transfusion-associated HCV, so the number of cases was limited to almost zero. The only differing trend is a global increase in HIV positive "men who have sex with men (MSM), with acute HCV infections over the last decade (Boesecke, Wedemeyer, & Rockstroh, 2012). Recent European figures show a continuing acute HCV epidemic, particularly amongst HIV positive MSM (Boesecke et al., 2015).

2.7 Clinical manifestations

2.7.1 Clinical manifestations HBV

Across both acute and chronic diseases, the spectrum of clinical symptoms of HBV infection differs. Symptoms vary widely from subclinical or anicteric hepatitis to icteric hepatitis during the acute phase, and in certain cases, fulminant hepatitis. Outbreaks vary from a symptomless carrier state to chronic hepatitis, cirrhosis, and hepatocellular carcinoma during the chronic phase. Extrahepatic symptoms may happen through both chronic and acute infections (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2018).

2.7.1.1 Acute hepatitis

The incubation period after HBV infection is from one to four months. Until acute hepatitis progresses, there may occur a prodromal

phase of fever, skin rash, arthralgia and arthritis. Most common clinical manifestations of hepatitis are vomiting in the upper right quadrant, diarrhea, jaundice and other undefined clinical signs. Symptoms – like jaundice – generally disappear after 1 to 3 months, with levels of "alanine and aspartate aminotransferase (ALT and AST) increasing to 1000–2000 IU / L during the acute phase". Usually, ALT is taller than AST. The levels of bilirubin in a significant portion of patients can be normal. Normalization of serum aminotransferases generally occurs within one to four months in recovering patients. Continuous serum ALT elevation for more than 6 months suggests they developed to chronic hepatitis, developing hepatic failure is uncommon and occurs only in around 0.1–0.5 percent of patients., (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2018).

2.7.1.2 Chronic hepatitis

As described earlier, HBV chronicity in older person-acquired infection is 5 percent or lower. It is approximated to be about 90 percent of perinatally associated infections, and 20–50 percent of diseases between one and five years old (Ganem & Prince, 2004; McMahon et al . , 1985). The majority of patients do not have an acute hepatitis history. Many other chronic HBV (CHB) people have no symptoms in the clinical sense. Some may present with non-specific symptoms such as fatigue. Serious clinical signs can only occur in most cases if the liver disease progresses to decompensated cirrhosis.

Furthermore, manifestations that cause extrahepatic symptoms. Likewise, in most cases, a physical test would be usual. Clinical manifestations of chronic liver disease may occur in advanced liver disease including "splenomegaly, spider angioma, caput medusae, palmar erythema, testicular atrophy, and gynecomastia". The result of CHB

infection based on the intensity of liver disease when HBV replication is halted in patients with decompensated cirrhosis, jaundice, ascites, peripheral edema, and encephalopathy. Hepatic fibrosis can be reversible when HBV replication is managed (Mauss, Berg, Rockstroh, Sarrazin, & Wedemeyer, 2018).

2.7.2 Clinical manifestations of HCV

Medical symptoms of HCV infection differ in the continuum of acute and chronic disease. Acute hepatitis C virus is most generally asymptomatic (Vogel et al . , 2009), and in about 75 percent of cases progresses to chronic infection. Chronic HCV symptoms vary from asymptomatic to cirrhosis, and hepatocellular-carcinoma. hepatitis C virus is typically progressive in slow motion. Thus, in many cases, it does not cause clinically evident liver damage if the infection is acquired later in life. About 20 to 30 per cent of chronically infected people grow cirrhosis over a 20 to 30-year span. (WHO, 2016).

2.7.2.1 Acute HCV

There's a variable incubation time after infection of the HCV. PCR can detect HCV RNA in the blood (or liver) in a few days to 8 weeks. Most newly infected individuals, however, would be symptomless or have a clinically non apparent, or mild path. Jaundice is present in less than 25 per cent of infected individuals as a clinical characteristic of acute hepatitis C. Acute hepatitis C is also unidentified in several people (Vogel et al., 2009). In some population of patients at high risk of infection, e.g. HIV positive MSM, regular screening for infection can be reasonable. If acute hepatitis C virus is suggested PCR for hepatitis C virus RNA screening is required as hepatitis C virus antibodies may not be available until now; HCV seroconversion may be postponed, especially in persons co infected with HIV.

Many symptoms that can appear in many other cases of acute viral hepatitis, such as malaise, nausea and upper right quadrant pain, are common. In people with these acute hepatitis symptoms, the disease usually lasts about 2–12 weeks. In about 40 per cent of patients, aminotransferase rates should normalize along with clinical symptom resolution. Loss of HCV RNA that suggests hepatitis C cure happens in less than 20 per cent of people, regardless of aminotransferase normalization. Fulminating hepatic insufficiency due to acute HCV infection seems to be very uncommon. Patients with ongoing chronic HBV infections may be more popular (Chu, Yeh, & Liaw, 1999).

2.7.2.2 Chronic HCV

There is a high chance of Chronic HCV infection. 75–100 per cent of patients stay positive for HCV RNA following acute hepatitis C, in a further follow-up, the majority of these would have persistently elevated liver enzymes. After over 6 months of assumed infection, HCV is classified as chronic following viral persistence. There's a very low rate of spontaneous clearance once the chronic disease is developed (Alter et al . , 1999; Vogel et al., 2009)..

In most cases, it is unknown why HCV contributes to chronic infection. The virus' genetic diversity and its rapid rate of mutation would allow HCV to avoid immune recognition. Also, host factors may play a part in spontaneously clearing the virus. During childhood, HCV infection tends to be related to a lower risk of chronic diseases of around 50-60 per cent (Vogt et al . , 1999).

Many chronic infected people have no symptoms or have only mild, nonspecific symptoms as there is no liver cirrhosis (Merican, Sherlock, McIntyre, & Dusheiko, 1993; Lauer GaW, 2001). The most common symptom is that of fatigue. Nausea, weakness, myalgia,

arthralgia, and weight-loss are the less common forms. Often cognitive deficiency associated with HCV. These are all non-specific symptoms, and so don't indicate disease activity or severity (Merican, Sherlock, McIntyre, & Dusheiko, 1993).

2.8 Serological Markers for Diagnosing HBV

Serological test results are commonly used to diagnose HBV, while clinical chemistry, hepatic enzyme analysis, and histological procedures also are useful (Robotin and Mathews, 2008). After exposure, the human develops HBV antigens and antibodies often known as HBV marker and can be contained in the serum of the person. Such HBV-infection markers could be identified by serological methods; this diagnostic approach includes patient serum antibody and antigen reaction under controlled circumstances (Beltrami et al., 2000).

Serological tests that use this marker will determine whether anyone is vulnerable to pathogens, immune from or is seriously infected or permanently infected with a resolved infectious disease or vaccine (Robotin and Mathews 2008). HBsAg, which is the first serologic virus marker to emerge, is released into the patient's blood after diagnosis (Firnhaber & I ve 2009). It is detectable from 4 to 10 weeks of an acute infection, which leads to the start of clinical symptoms (Robotin which Mathews, 2008). In the continued existence of HBsAg for more than 6 months, chronic infection is established (Beltrami et al., 2000).

HBsAg is the standard method for classifying the carriers of acute and chronic infections. A positive HBsAg test result shows an infected person but does not alone tell whether an illness is chronic or acute (Robotin and Mathews, 2008). Anti bodies to the surface anti-gen (anti-HBs) suggest tolerance to hepatitis B virus either after infection resolution or vaccine efficacy (Beltrami et al., 2000). If the anti-HBs stay

in the blood alone, this is related to immunity after vaccination. This is consistent with immunity after HBV infection when anti HBs and core antigen (anti HBc) antibodies are present (Firnhaber and I ve, 2009).

Protection from HBV infections requires a title against HBs of 10mlIU / ml or higher. Immunoglobulin type M (IgM) anti HBc develops in considerable levels in the first 3 to 6 months after diagnosis and is considered to be the best serological predictor of acute infections. Finally, anti HBc IgM decreases while there is a rise in immunoglobulin type G (IgG) (Beltrami et al., 2000).

A high degree of anti HBc IgM, with the inclusion of HBsAg, typically indicate an acute infection, whereas chronic disease is characterised by the absence of anti-HBcIgM and HBsAg. Low anti-HBc IgM levels can be indicative of chronic HBV reactivation. Anti-HBc IgG is the current lifetime after exposure occurs. Both the anti HBc IgM and IgG do not defend themselves against HBV (Robotin and Mathews, 2008). At the same time, HBsAg and antiHBc IgM appear to be undetectable when the acute infection clears anti HBc IgG (Beltrami et al., 2000).

Hepatitis B endogenous antigen (HBeAg) is a protein formed in accessories Through Intensive HBV Replication. The existence of HBeAg is related to increased individual infectivity (Robotin and Mathews, 2008).

Generation of antibodies against HBeAg (anti HBe) and failure of production of HBeAg (known as seroconversion of HBeAg) is low replication of HBV-DNA involved. Although anti HBe is not a defensive antibody, its existence is a useful discovery, as it indicates lack of replication of HBV and this seroconversion has been regarded as the final treatment point for positive people with HBeAg (Firnhaber and I ve,

2009). Hepatitis B and C can be detected by ELISA (Enzyme) rapid assay test Link Immune Sorbent Assay and Polymerase Chain Reaction Assay (PCR). Prevention is the best way to deal with the viral hepatitis outbreak, and screening offers an opportunity to identify the virus in its symptomless phase and helps to diagnose and treat it early. Screening services are also commonly used to diagnose the virus in people with past hepatitis B and C infections, and help avoid complication (Kumar and et al. , 2010).

2.9 High Risk Groups of Having Hepatitis B Virus and Hepatitis C Virus

Everyone who has directly contact with bodily fluids contaminated with HBV ("blood, semen, and vaginal secretions") is at risk "(were born to an HBV-infected mother, have ever worked with or come in contact with infected bodily fluids, have ever lived with an infected person, have ever had unprotected sex with an infected person, have ever had multiple sexual partners, have ever had a sexually transmitted disease, a man who has sex with men, have ever injected or inhaled drugs (even once), have ever worked or been housed in a prison, have ever traveled to countries where HBV is common, or have ever been on hemodialysis)". (American Liver Foundation, 2012).

Part (III)

2.10 Nurses Role in Caring for Patients with HBV & HCV

The role of the Hepatology Nurse in caring for hepatitis B and C patients appears as a unique specialist of hepatology nursing. It is endorsed by "the First National Hepatitis B Strategy 2010-2013". Chronic hepatitis B and C needs ongoing medication intervention; thus, patients may continue to communicate with the public health system on a daily basis, and hepatology nurses play a vital role in caring for CHB and CHC

patients as they assist the patient throughout the execution of the management program, and both with and without medication. Hepatology Nurses now play a significant part in campaigning and lobbying on behalf of CHB patients, improving access to treatment and addressing their clinical needs across a variety of health-care settings. Hepatology Nurses continue to better avoid the infection of hepatitis B virus The Hepatology Nurse plays an essential role in training and/or closing patient interactions with CHB to be screened and vaccinated, if at all prone. The Hepatology Nurse also contributes to the promotion of immunization for patients at risk, such as people who use drugs and men who have had sex with men (Australasian Hepatology Association, 2012).

2.11 Control and Prevention of Hepatitis B & C Virus

The first vaccination for HBV is a milestone in the prevention of hepatitis B (WHO, 2008). In the early 1980s, plasma derived vaccines had been approved. It extracted fragments of HBsAg isolated from chronic patients' plasma. Due to concerns of transfer of live HBV and other blood-borne pathogens, like HIV, the vaccine was effective and safe but not very well approved (Serviddio, 2013). A modern recombinant HBV vaccine has increasingly replaced the plasmaderified vaccine since the mid-1980s. The vaccines has an impressive safety record and is highly effective in avoiding infections and their serious effects (WHO, 2008). Upwards of 95 percent of infants , children and adolescents (0-19 years), and over 90 percent of healthy adults, develop adequate antibodies after three intramuscular doses. At age 60, 75% of immunized people develop defensive antibody titers. (Serviddio, 2013). The primary hepatitis B vaccination infancy sequence is acceptably composed of 3 dosages (WHO, 2000). The use of regular booster doses

does not seem essential to maintain longterm protection inefficiently immunized immunocompetent babies (WHO, 2000; Serviddio, 2013).

Though other studies indicate that a mandatory baby immunisation in intermediate and high endemic regions may be more cost effective, the WHO highly advises that all newborns undergo the hepatitis B vaccine at birth (WHO, 2000; Serviddio, 2013).

Primary vaccination starting at birth and other effective vaccine approaches for hepatitis B have significantly decreased spread of HBV in many highly infected countries (Serviddio, 2013). In regions where HBV is predominantly transmitted at birth from mother to child, the first dosage of the vaccine will be delivered as early as possible after childbirth, usually within 24 hours. In groups of infants with inadequate coverage, the need for catch-up vaccine should be recognized to raise the percentage of covered babies as the incidence of chronic infection is higher in younger age groups (WHO, 2000). Target groups for catch-up vaccination in intermediate/low endemic countries may include teenagers and individuals having risk-factors for the acquisition of HBV infection, including subjects who "frequently require blood or blood products, dialysis patients, people with chronic liver disease, recipients of solid organ transplantations, people interned in prisons, injecting drug users, household and sexual contacts of people with chronic HBV infection, people with multiple sexual partners, men who have sexual contact with other men, HIV positives, healthcare workers, staff of facilities for developmentally disabled persons and others subjects exposed to blood and blood products must be vaccinated". Vaccination is the best protection for not only the staff themselves but to also avoid infectious diseases from being spread to the clients (WHO, 2000; Serviddio, 2013).

Short term immunity (three to six months) can be gained by injecting hepatitis B (HBIG) immuno- globulin for prophylactic therapy following exposure (WHO, 2000). Babies born to HBsAg positive mothers, especially those who are HBeAg positive, people exposed to HBsAg positive blood or other body fluids, those who have had sexual exposure to HBsAg-positive and those who need protection from persistent HBV infection from liver transplant may have an additional advantage from HBIG prevention in combination with Hepatitis B vaccine. (WHO, 2000). An HCV vaccine is still not accessible, so there is no defence for immunoglobulin. The critical protection aims to mitigate the risk of transmitting HCV through:

- avoiding unnecessary and unsafe injections, unsafe sharps waste collection and disposal
- screening of blood, plasma, organ, tissue, and semen donors;
- controlling use of illicit drugs and preventing the sharing of injection equipment among drug users
- promoting protected sex with hepatitis C-infected subjects;
- advising household contacts of HCV infects about the risk related to share of sharp personal items
- avoiding tattoos, piercings and acupuncture performed with not sterilized equipment.

Recognizing people at risk and not yet diagnosed with HCV offers an incentive to educate on how to minimize their danger, risk categories to regularly screen illicit drug users will be injected; subjects received:
Concentrate coagulation factor developed before the late 1980s,
the donor of blood consequently testing positive for HCV infection,
blood transfusion, or organ transplantation until the early 1990,

people of long term hemodialysis, or persistently elevated levels of alanine aminotransferase (Serviddio, 2013).

Health care, medical emergency and public health and safety workers must be tested routinely on the basis of a recognized exposure after needle sticks, sharp or mucosal exposure to hepatitis C virus positive blood and babies born to hepatitis C virus positive mothers, immunoglobulin and antiviral agents are not suggested for post exposure prophylactic HCV. Firstly, HCV-positive substances don't donate blood, tissue or semen and/or use blood-contacting instruments such as tooth brushes, dental materials, razors and nail clippers to reduce the possibility of spread to others. Epidemiological monitoring is a crucial factor in the prevention of viral hepatitis, as it gives evidence for the identification of new diseases.

2.11.1 Wash your hands thoroughly after any potential exposure

2.11.2 Practice safe sex with all partners

2.11.3 Prevent close contact with body fluids and blood

2.11.4 Wipe up blood stains with a paste of fresh liquid bleach

2.11.5 Exclusively cover all cuts

2.11.6 Stop swapping sharp things like razors, nail clippers, tooth brushes, earrings

2.11.7 Refuse sanitary serviettes and tampons into plastic bottles

2.11.8 Stop the illegal use of prescription drugs (injection, inhalation, snoring, popping pills)

2.11.9 Ensure clean, sterile instruments are used for penetrating the ear or body; acupuncture, and tattoos (Hepatitis B Foundation, 2009).

2.11.10 Education of Patients with Acute and Chronic Hepatitis B: Patients should be advised on how to transmit HBV and how to limit / prevent transmitting to anyone else (e.g., family, personal, needle, razor

or tooth brush exchanging connections, intimate relationship boundary methods) (Koziel and Siddiqui, 2010; Lok and McMahon, 2007)

2.11.11.1 patients should not be guided to exchange the tooth brushes, razors or drug using injection tools (e.g., needles) or organ donation or blood (CDC, 2012).

2.11.11.2 People with HBV infection must be advised to avoid contact with other people through their blood (e.g., cover open wounds) as well as other highly infectious body fluids (e.g., saliva) (Koziel and Siddiqui, 2010; CDC, 2012).

2.11.11.3 To teach people on how to better clean up blood stains (Lok and McMahon, 2007).

2.11.11.4 Patients should be informed about the need to warn health care providers or other medical facilities which they've been diagnosed with HBV (CDC, 2010)

2.11.11.5 patients who are medical or dental workers should be advised not to carry out exposure prone practices until they have received recommendations from an independent advisory panel and therefore should be informed on the conditions in which they can continue to carry out these procedures (Heymann, 2008; CDC, 2012).

2.11.11.6 patients to reduce or prevent alcohol intake should be recommended, as alcohol abuse is a risk factor for quicker development to cirrhosis (Koziel and Siddiqui, 2010; CDC, 2010).

2.12 HBV Vaccination

Prevention is ultimately the most efficient and humane means toward improved health (Ehreth, 2003). Viral hepatitis B is preventable with effective vaccines, which is proven safe to both adults and children (Damme and Herck, 2007). Through their formal preparation or early life, it is essential to vaccinate HCWs who have not

been immunised through childhood routine immunization programs, so that they are safe until exposure to danger while beginning employment (Puro et al., 2005). It offers protection against HBV, both pre- and post-exposure. Three intramuscular dosages of HB vaccine is given during pre-exposure vaccination, resulting in the development of protective antibodies in > 90 per cent of healthy recipients (Varghese et al., 2003).

It is recommended that HCWs be tested for anti-HBs once they have been vaccinated to check if they have responded to the vaccine. Checking for anti-HBs should take place 1–2 months after three-dose series is complete. Sufficient response to the antibody is defined as anti-HB level 10mIU / ml. A fourth dose should be given for non-responders who are HBsAg negative and anti-HBc negative, and they'll be assessed for antibodies 1 to 2 months later; if still negative, a 5th and 6th dosages must be provided and another assessment 1 to 2 months later (Puro et al., 2005).

2.13 Universal Precaution to Prevent Exposure to HBV and HCV

The Centre for Disease Control (CDC) describes universal prevention as a collection of safeguards or steps intended to prevent the spread of HBV, HCV, HIV as well as other body fluid, bloodborne pathogens while delivering first aid or healthcare (Jawaid et al . ,2009; Kalu and Odusanya, 2012).

Universal precautions are a series of recommendations aimed at protecting health care workers (HCWs) against bloodborne diseases (Bennett and Mansell, 2004). The protection applied to every fluid, include “blood, secretions, and excretions (except sweat), whether or not they include clear blood, non-intact skin, mucous membranes, or unfixed tissue or organ (other than intact skin) from human (living or dead),

human immunodeficiency virus (HIV) or hepatitis B virus (HBV) containing culture medium or other solutions Standard or Universal Precautions" (CDC, 2007)

Blood and other body fluid in both patients are considered highly dangerous for HIV, HBV and other bloodborne infections under normal precautions. Precautionary measures are seen as a successful way to protect health care workers, patients and the public, thus minimizing infections acquired from hospitals (Wang et al., 2003). Precautionary measures are intended to prevent healthcare professionals from becoming exposed to possibly infectious body fluids and blood by applying basic standards of infection control, via hand-washing, by using suitable safety measures such as gloves, masks, gowns and eyewear (Motamed and et al., 2006).

2.13.1 Hand Washing

The palm has to be the most popular microbial-transmission device. Washing hands has been shown to be an essential and most efficient strategy used to avoid infection and viral infections from spreading (David and Famurewa, 2010). Washing hands lowers the amount of highly contaminated microorganisms in the skin, which reduces the incidences of the spread of pathogens in the health care facility. Hygienic hand washing means using antiseptic agents and/or cleaning products to wish the hand in as little as 10-15 seconds and use an alcohol-based substance to clean the skin. The hands and other skin surfaces should be washed immediately and thoroughly if contaminated with blood and other body fluids to which universal precaution apply or potentially contaminated articles(Bamigboye and Adesanya, 2006). Hands should always be bewashed with soup and running water

following contact with blood or other, potentially infectious body secretions even if gloves have been used for the tasks (Kalu et al., 2008).

2.13.2 Gloves

Understanding precautionary measures, gloves must be worn for contact to blood or other body fluids potentially contaminated, contaminated objects, mucous membranes, nonintact skin or potentially contaminated intact skin, such as a patient incontinent with stool or urine, can be reasonably anticipated (Siegel et al., 2007).

2.13.3 Gowns

Gowns must be ideal for skin safety as well as for the avoidance of soiling or garment infection during interventions and medical treatment when touch to blood, body fluids, saliva or excretions is expected (Siegel et al., 2007).

2.13.4 Shoe Covers

Leg coatings, gloves, or shoe coverings offer increased skin safety when droplets or large amounts of infected material are available or projected (Satekge, 2010).

2.13.5 Face Shield, Mask and Goggles

This is worn alone or in conjunction that can provide protective barrier during operations likely to cause blood or body fluid droplets (Satekge, 2010)

2.13.6 Safer Medical Devices

This involves needless equipment and not needles where successful and safe options exist, preventing recapping needles and promptly disposing of needles in suitable sharps containers for disposal. Health care workers must report potential needle

dangers and aid their service in selecting and evaluating safety devices. To ensure appropriate follow-up, needle-stick wounds and other exposures to blood or other body fluids must be reported promptly (Satekge, 2010).

2.13.7 Mouth, Nose, and Eye Protection

During operations and patient care practices, PPE must be used to preserve eye, nose and mouth mucous membranes that are prone to contain droplets of blood sprays, bodily fluids, mucus, and excretions. Choose hats, goggles, face coverings and combinations of each one as per the expected mission (Satekge, 2010).

2.13.8 Patient Care Equipment and Instruments/ Devices.

Guidelines and protocols for the storage, distribution and management of equipment and tools/appliances that may be tainted with blood or other body fluids should be developed. Organic materials should be washed from critical and semi-sensitive equipment / devices using permitted cleaning agents before disinfection and sterilization at high levels to allow for effective infection prevention and control methods. When handling patient care services and equipment that are obviously soiled or that could be in the blood and other body fluids, PPE should be used according to the degree of infection predicted (Siegel et al., 2007).

2.13.9 Safe Injection Practices

The following guidelines relate to the use of needles, cannulas which replace needles, and intravenous guidance systems where appropriate.

1- Using aseptic procedure to eliminate sterile injection infection

Facilities.

2-Should not prescribe syringe drugs to several patients, even though the needle or syringe cannula is altered. Needles, cannula, and syringes are singular-use, clean items; they can not be re-used by another person, nor should they have been permitted to touch a drug or substance that may be used by another patient.

3-Sets of fluid injection and delivery, i.e. intravenous pads, tubing and connections, can only be used by one patient and dispose of properly after use. Find a tainted syringe or needle/cannula if it is used to penetrate or attach to an intravenous injection pad or system of administration for a patient.

4-Using single dose vials, whenever possible, for parenteral treatment.

5-Don't prescribe pharmaceutical items from single dose vials or ampoules to several patients and do not mix the residual material for future use.

6-When you need to use multi-dose vials, the needle or cannula as well as the syringe used to reach the multi-dose vial should be sterile.

7-Don't hold multidose vials in the immediate field of care for patients; store them as suggested by the producer and dispose of them if sterility is impaired or doubtful.

8-Also, don't use intravenous fluid bags or containers as a standard method of treatment for different medications (Siegel et al., 2007).

2.14 Treatment of Hepatitis B

2.14.1 Treatment of Acute Hepatitis B Virus

Spontaneous recovery occurs after acute infection with HBV occurs in 95–99% of previously healthy adults (World Gastroenterology Organization, 2007).

There's still no particular treatment for acute hepatitis B, and care is intended to promote relaxation and good nutritional health, including the recovery of fluid drained from diarrhea and vomiting (WHO, 2012).

2.14.2 Treatment of Chronic Hepatitis B Virus

The aim of treatment for chronic hepatitis B is to improve the quality of life; to delay or reverse the progression of liver disease to liver failure; to minimize the risk of developing HCC, and to reduce the risk of infection. First line therapy would be an agent with optimum resistance potential and barrier. The agent should be able to quickly minimize viremia to undetectable levels, and consistently retain HBV DNA at undetectable levels. The capability of managing HBV with the finite length of treatment would also be substantial (Coffin et al., 2012).

There have been 2 main treatment classes:

• Antivirals: This target to inhibit or kill HBV by viral replication interference

• Immune modulators: They are engineered to support the body's immune system mount a viral response (Mahoney, 1999).

The common drugs used for treating chronic HBV infection are:

1. Interferon: It helps stimulate the immune system's response to HBV and helps to prevent cell replication of the virus. There are a few instances in which the virus is completely eliminated by interferon while this virus may return later. The main drawback is its amount of side-effects.

2. Lamivudine (Epivir-HBV): this is an antiviral drug that effectively prevents cell replication of HBV. Typically it has minor side-effects through treatment.

3. Adefovir dipivoxil (Hepsera): A drug administered once a day as a tablet, or Lamivudine. Its main benefit is that it is beneficial in

Lamivudine-resistant patients. Which also has fewer side-effects while it is being administered.

4. Entecavir (Baraclude): FDA's most recently approved drug in March 2005. -During care, it has fewer side-effects and is also used once per day. When serious liver damage occurs, hepatic transplantation can be the only alternative, and it has varied effectiveness. Unfortunately, for any person who wants a transplant, there are not enough donated organs available.

Liver cancer is nearly often terminal and sometimes occurs when it is more active and has family commitments of individuals of age. Many patients with liver cancer die in the developed world within months of diagnosis. In countries with higher incomes, surgery, and chemotherapy will extend life in certain patients for up to a few years (Mayo clinic, 2009).

2.15 Treatment of Hepatitis C

2.15.1 Treatment of Acute HCV

Acute icteric hepatitis: There is strong evidence which pegylated interferon (both with and without ribavirin) administered during the acute stage can limit chronicity only to ten percent or less (Calleri et al., 2007; Matthews et al., 2009). Spontaneous cure of acute hepatitis C is expected when HCV-RNA loss occurs during the first twelve weeks, while variations in the first year following acute HCV infection are not unusual. Just those positive HCV-RNA needs to be treated for more than 12 weeks (Kamal et al., 2006). HCV genotypes 1 and 4 need 24weeks of therapy while HCV genotypes two or three need just 12 weeks of treatment (Kamal et al., 2006). When HIV is positive, the client will need to be treated pretty early than twelve months and need to see a management specialist.

2.15.2 Treatment of Chronic HCV

Chronic HCV infections: Pegylated interferon alfa and ribavirin in about Fifty percent of patients can treat the chronic condition (Brok, Gluud, & Gluud, 2010; Mangia et al., 2009). After all, the treatment required may vary depending on the genotype, initial response and other factors, treatment for patients with genotypes two or three must be for 12–24 weeks (Dalgard et al., 2008; Mangia et al., 2009). While HCV genotype 3 patients with advanced liver fibrosis and recognizable HCV-RNA that benefit from prolonged treatment period (twelve months) at week 4 of treatment, all other HCV genotypes (which include 1 and 4) must be managed for 12–18 months. Management would be stopped because, at week twelve of treatment, there was no decrease in HCV viral load < 2 log or invisible amounts around week 24. Patients with unnoticeable viral load at week 4 (rapid virological responders) are more likely to be recovered and can benefit from shortened treatment courses (Mangia et al., 2008). People were more likely to react if they don't have cirrhosis if they have been diagnosed with other HCV genotypes (types 2 & 3) with low serum HCV-RNA levels (5,500,000 IU / mL) (Brok, Gluud, & Gluud, 2010; Mangia et al., 2009).

2.16 Post Exposure to Hepatitis B & C

2.16.1 Significant Exposures

Anyone with any previous blood or other body fluid contamination may be directed immediately to the closest emergency room. Emergency room employees need to be briefed and advised of the severity of the situation and action to reduce waiting times for patients should be taken. (Simcoe Muskoka District Health, 2014). Includes body fluids that can transmit “HBV, HCV and HIV” from an infected source (Alter et al . , 2001).

• Blood, plasma, serum and other obviously blood-contaminated biological fluids;

• Laboratory tests, cells or cultures containing "HBV, HCV or HIV" concentrations;

• Semen and vaginal secretions (a shallow HCV risk);

• Pleural, amniotic, peritoneal, pericardial, synovial and cerebrospinal fluids.

• Milk of breast (HIV only).

• Saliva (HBV only, unless the blood is infected).

• The tissue and organs.

Note: Faeces, nasal secretions, saliva, tears, urine and diarrhea are not known as highly contaminated unless the blood is clearly infected (Alter et al., 2001).

2.16.2 Test the Source Person and the Exposed Person.

2.16.2 .1 Testing of the Source Person.

Wherever the person of origin is known, they may be consulted to provide information on the health history, risk factors and a blood sample for HBV, HCV and HIV testing Suggested HBsAg and anti HCV studies (Simcoe Muskoka District Health, 2014)

2.16.2 .2 Baseline Testing of the Exposed Person.

The screening will be performed at exposure time, or as early as possible, to create a baseline and usually at three months after exposures again. In some instances, it could be suggested that re-testing takes place every six months. The exposed person's baseline test will include Anti HBs, HBs Ag (if unvaccinated or if uncertain vaccine reaction) and Anti HCV (Simcoe Muskoka District Health, 2014).

2.16.2 .2.1 HBV

The standard range of HBV tests is anti HBs (HBV surface antibodies), and HBV antigen (HBs Ag) suggests a positive antibody test at > 10mIU / mL for patients who are not vaccinated or whether their response to previous HBV vaccine is uncertain (Public Health Agency of Canada, 2010). Usually, as they were immunized, or because they were already contaminated. In the latter case, the person is not contagious. The exposed person is vulnerable to infection when the antibody test is negative, or < 10 mIU / mL, so prophylaxis after exposure could be needed (Public Health Agency of Canada, 2010). Standard follow-up time ranges for HBV tests following treatment are two years (or follow-up could be three weeks to include the repeat HIV test) and six months (Public Health Agency of Canada, 2010).

If the exposing individual is historically reported to be resistant to HBV (documented anti-HBs ranging from 10 IU / L at some point in the past) or is considered to be HBs Ag positive, otherwise source and exposed HBV screening is needless. (Simcoe Muskoka District Health, 2014).

2.16.2 .2.2 HCV Test

HCV tests are available in two types of tests: anti-HCV (HCV antibodies) and HCV-RNA (qualitative PCR) checking for the existence of the virus in the body (Simcoe Muskoka District Health, 2014). Against HCV:

It's the only benchmark HCV test needed

1-Negative HCV antibody testing means: no infection history or person is in the seroconversion window anywhere from 4 to 12 weeks after infection (Pinette et al., 2009). The exposed person will, therefore have a repeat antibody test within three months, and again at six months.

If an individual is immunocompromised, a false negative antibody test can occur. This condition will require more HCV-RNA testing to rule out its false negative, or to check for disease involvement.

2-Positive antibody testing means: prior exposure to HCV has occurred. An HCV-RNA test is needed to determine the existence of an active infection. The virus can usually resolve by up to 20 per cent of infected individuals (Pinette et al., 2009).

HCV RNA screening test for the presence of the active infectious disease is widely called as the PCR or viral load test. The PCR check value means early identification, referral and therapy.

HCV-RNA testing was performed following a positive HCV anti-body testing. Still, it should be recommended after potential high-risk treatment, such as blood exposure involving exchanging of "injection drugs using (IDU)" instruments or blood exposure to persons reported to be HCV positive.

Although it may be possible to detect HCV-RNA as quickly as one to three weeks after exposure, the health unit suggests monitoring at six months as the probability of detecting HCV exceeds 70% at this time (Public Health Agency of Canada, 2010).

Where hepatitis C virus RNA is negative at six weeks, further anti hepatitis C virus monitoring at three and six months is advised.

Understanding the outcomes:

1-If the virus is identified by HCV-RNA monitoring, a number indicating viral load will be given. This number should read > fifteen IU / ml, though it can detect lower viral loads.

2-False-positives for the handling of HCV RNA (if the specimen were contaminated) and false negatives (if the sample was not immediately

frozen or delivered in sub optimal condition) are also possible(WHO,2012).

3-Positive Anti hepatitis C virus and negative hepatitis C virus RNA: there is a historical past that has been solved by itself since this is a false-negative mechanism. The person is not contagious and will be positive for all potential Anti-HCV tests. But a positive antibody test doesn't mean immunity against a possible infection due to differing genotypes for HCV(WHO, 2016).

Positive anti hepatitis C virus and positive hepatitis C virus RNA: this means that an individual is infected, requires further investigation to assess disease progression and antiviral therapy may be appropriate, based on the genotype. This individual is contagious, and to help safeguard others must be advised(CDC, 2019).

Post Exposure Management of HCV 2.16.3

No unique intervention is available to inhibit HCV transmission after an infection. Immune serum globulin must not be provided because there is no proven benefit. There's no proof of the use of anti-viral agents in the postexposure HCV environment and no recommendation for this treatment (Alter et al., 2001). In the absence of HCV PEP, the recommendation is to closely monitor the exposed person for early infection and if present refer to a specialist for treatment options(Alter et al., 2001).

People who have needle stick injury from either a documented or high risk source of HCV should be carefully watched for signs of acute infection. An individual may have no symptom when HCV transfer happens, or they may become indicative and develop jaundice, feel ill and may show signs of irregular liver biochemistry. Infected individuals

should remove up to 20 per cent of the infection. The remaining 80 percent will continue to get chronic HCV infection (Pinette et al., 2009).

HCV therapy can treat HCV infection, dependent on the HCV genotype, in 40-90 percent of patients (Pinette et al., 2009). The length of therapy depends on the genotype, which can range between 24 to 72 weeks (CDC, 2013). Following a successful HCV-RNA test, the RNA test will be replicated to validate the presence of infection at 12 weeks post exposure. That's the indicator which defines the starting point for therapy. It is highly critical for the person newly exposed to HCV to be detected early because that referring to a professional and care can be provided(CDC, 2019).

2.17 Post Exposure Prophylaxis (PEP)

PEP is described as any prophylactic treatment which is immediately started during pathogen exposure (such as an illness-causing virus) (Public Health Agency of Canada, 2010) . It's the one drug therapy directly following exposure to an infective agent in an efforts to avoid the infectious disease from spreading rapidly in the body and is designed to protect the patient from the pathogenic organism to whom the person has lately been exposed (Anil et al., 2007). The transmission rate of HBV Infection from the infected person via a needle stick is less than 1 percent. However, the risk of contracting HBV Infection from the infected person through a needle stick is less than 1 percent. The supply of PEP for healthcare workers is claimed to help to increase the motivation to engage with clients with hepatitis B infection (Nisha et al., 2014).

When an unimmunized HCW is subjected to an individual's blood or body fluid confirmed to be positive for HBV, the first injection of the vaccine and one dose of HBIg should be given in less then 24hrs if

necessary, and the remaining 2 dosages of the vaccine must be delivered within 1–6 months from the first dose. The vaccine doses should then be tested 1-2 months after completion. And if the source's hepatitis B status is uncertain, hepatitis B vaccine doses will be initiated with Health care workers as early as possible. Checking of defensive antibody should then be carried out (CDC, 2001).

2.18 Complications of Hepatitis B & C Virus

Failure of the liver cells to regenerate, with the progression of the necrotic process, results in a severe acute and often a fetal form of hepatitis known as fulminant hepatitis. Hepatitis is considered to be chronic when liver inflammation lasts longer than 6 months. Chronic hepatitis usually occurs as a result of hepatitis B or hepatitis C, superimposed infection with hepatitis D (HDV) in patients with chronic HBV may also result in chronic hepatitis. Many patients have multiple infections, especially the combination of HBV with either HCV, HDV, or HIV infections. Chronic hepatitis can lead to cirrhosis and liver cancer (Ignatavicius and Workman, 2013).

In certain people that have chronic hepatitis B, the damage to the liver caused by infection and inflammation gradually contributes to the loss of healthy fibrotic scar tissue in the liver. These variations in the living structure are called (cirrhosis) because they allow the liver to look tawny coloured ("cirrhosis is the Greek word extraction for tawny"). Hepatic cell damage may lead to these common complications including portal hypertension, ascites and esophageal, coagulation defects, jaundice, portal-systemic encephalopathy (PSE) with hepatic coma, hepatorenal syndrome and spontaneous bacterial peritonitis (Ignatavicius and Workman, 2013).

Another severe problem caused by HBV is hepatocellular carcinoma (HCC)-the primary liver cancer. Chronic hepatitis B patients are a hundredfold more likely to experience hepatocellular carcinoma than those who overcome the acute infection. This hepatocyte cancer typically grows 25 to 30 years after acute infection (Lin and Kirchner, 2004). The consequence of this is approximately 600 000 HBV related deaths every year around the world, where the cause is primary liver cirrhosis or liver cancer (Dunford et al., 2012; WHO, 2012).

Part (IV)

2. 19 Previous Studies Related to Hepatitis B Virus for Nursing:

1- First Study

A Quasi-experimental study conducted in Iraq between 28 October 2013 and 31 December 2014 by (Mustafa Wahab & Taha, 2016) randomly selected a research population comprising from (60) nurses of both hospitals. It split into two equivalent categories, the survey group (30) nurses at Tal Afar General Hospital and the test group (30) nurses at Ibn Sina Teaching Hospital. The research findings revealed that the impact of the educational program on the knowledge of nurses against HBV is positive, and the results also showed the variations of statistically highly essential changes in the understanding of nurses after the introduction of the HBV education program relative to their expertise in the time preceding the opening of the research group programme. The study found no significant association between HBV knowledge amongst nurses and some of the demographical features. The research proposes activating the continuing nursing education program or medical education as well as specifying points and ratings for both acts as an equal point and measuring the advancement and yearly rise.

2- Second Study

Another study, conducted by (Ghafel, 2019) to assess the knowledge of Iraqi Midwives and nurses about hepatitis C Virus at maternity hospitals in Baghdad City this hospitals includes "(Baghdad Medical City Hospital , Ibn Al-Baladi General Hospital , Karkh Hospital for Childbirth and Al-Elwaya Maternity Hospital)". The study was starting at October 2018 to March 2019. Non-probability (purposive sample) including (150) midwives and nurses that are working in the maternity ward and delivery rooms to assess their knowledge about hepatitis C virus, The data were analyzed using "SPSS Version 24" and the percentage and frequency were used to measure and evaluate the study findings. The conclusions of the study show Iraqi midwives and nurses that work in the maternity wards and delivery rooms have insufficient knowledge about hepatitis C Virus. The highest percentage of them did not joining in courses or lectures to increase their understanding despite their working in the delivery rooms and maternity wards. So, a unique training program should be given to Iraqi midwives and nurses to prevent transmission of hepatitis C virus.

3- Third Study

Further study of a "multi-center cross-sectional study" conducted by (Joukar, Mansour-Ghanaei, Naghipour, & Hasandokht, 2017) in Iran, this study aimed to determine healthcare worker's awareness of HBV and HCV infections, inviting all healthcare workers from eight teaching hospitals to participate in the research and complete a self-administered survey. A group of 1008 eligible healthcare workers responded to the report. A high proportion (55.4 percent and 52.9 percent) of research participants had unsatisfactory awareness of HBV

and HCV. Mean score of information about HBV was slightly higher among the more trained staff, $p<0.001$ and vaccinated workers, $P=0.02$. Majority respondents responded correctly to HBV and HCV transmission questions (90% and 80 % respectively). Only the transmission domain score was statistically substantially different between different hospitals ($p<0.05$). The best scores were in reference to a medical operation. While more than 90% of our participants have been trained on HBV and HCV, information on the essence of the disease, Prevention, management and efficacy of the vaccines is unsatisfactory. Focused Viral Infection Preparation curriculum is a must.

CHAPTER THREE

METHODOLOGY

Chapter Three

Methodology

This chapter will present the methods and material used in the study to achieve the objectives and to find the statistic test appropriate with data collection in scientific approach.

3 .1 Administrative Arrangement

Before the beginning of the conducting the study, the researcher obtained formal approval through introducing the protocol of the study to the department council, to get permission of the subject appropriateness to scientific plan and then to health director to get ethical and scientific agreement and finally get the hospital, field nurses consent to collect and implement the tools of the study. Formal approving from the following:

1. Nursing College at the University of Mosul
2. Ethical Research Committee in Nineveh Health Directorate.
3. Written consent from the nurses before participation.

3.2 Study Design and Duration

A pre experimental research design with pre and post-test to the one group using the evaluative approach to evaluate the effectiveness of the information booklet regarding HBV and HCV was carried out from (10th of October 2019 to 4th of February 2020).

The choosing of the design depends on the intent of the analysis, the approach to study and the variables to be tested. One group pretest and posttest design was a sample method used for the current research. By using convenience sampling, 70 nurses working in pediatric hospitals were selected. There was no control group in this design.

According to Kothari.C .R. (2003), the quasi-experimental and pre-experimental design is a system in which pretest and posttest study is completed with just one chosen group and without a control group on

different days. The accompanying figure below consistently illustrates analysis architecture.

Non Randomized group	**Pretest**	**Treatment**	**Posttest**
Pre Experimental group	Knowledge test (O_1)	Information Booklet (X)	Knowledge test (O_2)

The variables for the present study are:

* "Independent variable (I.V.)"

Information booklet

* "Dependent variable (D.V.)"

a) Performance on pre-test

b) Performance on post-test

* Attributed variable (A.V.)

Personal characteristics which include hospital name, age, sex, education level, total years of clinical experience, fieldwork in hospital, previous participate training regards the prevention of viral hepatitis; previous participate training regards infection control and the source of information you have regards hepatitis B & C.

3. 3 Setting of the Study

3.3.1 – Setting

The current study was conducted in Ibn-Alatheer pediatric hospital and in Alkhansa"a teaching hospital in Mosul City at Nineveh governorate, which located in the north region of Iraq which far 400 kilometers North of the capital Bagdad. The information booklet was implemented in a lecture room in those hospitals.

3.3.2 – Sample Selection

The sample of the study consists of nursing staff (males and females) which were available during the data collection period.

3.4 Sample of the Study

A purposive sample was chosen for the study. The sample involves (70) nurses who worked in both hospitals. They were divided into two groups, each group of (35) nurse who was exposed to the educational program in Ibn-Alatheer pediatric hospital and another group of (35) nurse in Alkhansa"a teaching hospital.

3.5. "Criteria For Selection of the Sample

3.5.1 Inclusion Criteria."

3.5.1.1 Nurses who agree to take part in the research.

3.5.1.2 Male and female nurses.

3.5.1.3 Nurses who have an educational level (College, Institute, Secondary School Nursing).

3.5.1.4 Nurses who are available at the time of data collection.

3.5.1.5 Nurses who worked in different Pediatric departments (operating Room, surgical, medical, ICU, emergency, Blood disease ward and thalassemia center).

"3.5.2 Exclusion Criteria"

3.5.2.1 Nurses who refused to participate in the research.

3.5.2.2 Nurses who did not completely read the information booklet.

3.5.3 Tools and data collection

The self-administered knowledge questionnaire was constructed, the study conducted among 70 nurses selected from pediatric hospitals in Mosul city, Pre-test was conducted & the information booklet was

distributed, the post test was implemented after 14 days, tools use has three sections that include the following**:**

3.5.3.1 Demographic Data: Include 9 items on personal data such as hospital name, age, sex, education level, total years of clinical experience, fieldwork in hospital, previous participation in training regarding the prevention of viral hepatitis, previous participation in training regarding infection control and the source of information you have regarding hepatitis B & C.

3.5.3.2 Knowledge questionnaire: Consists of 26 multiple choice questions to evaluate knowledge pre and post administering Information Booklet about nurse's knowledge regard HBV and HCV. All the 26 objective type items were scored. Every true response received a score of one and a score of zero for wrong answers.

3.5.3.3 Information booklet: has been prepared to include the following

- Knowledge regards hepatitis B & C as general.
- Knowledge regards liver function and signs and symptoms of hepatitis B & C.
- Knowledge regards high risk groups to infection and infection transmission of hepatitis B & C.
- Knowledge regards diagnosis, prevention and complication of hepatitis B & C.
- Knowledge regards management, precaution measurement, and nurse role of hepatitis B & C.

3.6 Validity:

Validity is the degree to which a questionnaire, booklet or measure of perceptions and some other data collection tool guarantees that the studied activity is carried out (parahoo, 2006). It has become increasingly

common to refer to the content area of the questionnaire to a panel of experts to assess the validity of the tool "(Polit and Hungler, 1999)". To ensure their validity and to have their views on the appropriateness of the items in the instrument, the content of the tool (booklet and booklet questionnaire) was exposed to a group of 14 professional experts in different approaches of sciences (7 of them were PhD, F.I.C.M.S and C.A.B.M in Medicine, and 6 of them were PhD in Nursing and 1 PhD in Statistics). Such experts are requested to evaluate the content of the tool for consistency and relevance and take their notes into account.

3.8 Pilot study:

The pilot study is a small copy of the existing research for the preparation and implementation of the study program (Dempsey and Dempsey, 2000). In order to make sure of the stability and consistency of the assessment tool and testing its reliability, a pilot study was conducted on 5 nurses who worked in Ibn-Atheer pediatric hospital and 5 nurses who were working in Al-Khansa"a teaching hospital from the period throughout 19th of September 2019 to 9th of October 2019via filling a test to assess the weak point of nurses knowledge on the same sample. Sample of the pilot was omitted from the hole sample of the study.

3. 8 1 Reliability

Degree of consistency that the instrument of procedure demonstrates whatever it is measuring, it does so consistently (W. John, 1999). The reliability of the instrument has been calculated using the split half technology, which measures the internal consistency coefficient. The reliability of a split-test was identified with the prophecy formula of Spearman Brown, and it was noted that the test reliability was 0.99. The tool has, therefore, been shown to be statistically accurate for the research.

3. 8 2 Pilot study purpose was:

1- To recognize the clarity and content sufficiency of the study tool.

2- To detected the barriers that can be met through data gathering.

3- To estimate the time needed for the data gathering.

4- To determine the reliability of the study tool.

3.9 Statistical Analysis

Data analysis was planned to consist of "descriptive and inferential statistics".

3.9 .1 Descriptive statistics

- To describe the demographic data and level of knowledge of the nurses, Percentages were worked out for interpretation.
- To compute mean and standard deviation for the pretest and posttest of nurses' knowledge.

3. 9 .2 Inferential statistics

- Paired 't' test" to evaluate the effectiveness of Information Booklet on nurse's knowledge regard HBV and HCV.
- Analysis variance technique (F-test) to analyze the impact between pretest and posttest knowledge and demographic characteristics of nurses.

3. 10 Steps of the Study

1. Assessment needs opened questions to see the weak point of nurse's knowledge regarding HBV & HCV.
2. Construct the booklet according to weak point of knowledge.
3. Construct the questionnaire from booklet.
4. Validity of tools.
5. Pilot Study.
6. Pre-test.
7. Adminster booklet to nurses.

8. Post-test.

3. 11 Limitations of the study

1. Many nurses refuse participate in study.
2. Difficulty to collect nurses in same time.

CHAPTER FOUR

RESULTS

Chapter Four

Results

This chapter present the findings of the data analysis systematically in tables and these correspond with objectives of the study as systematic with detailed to assess the" Effectiveness of Information Booklet on Nurse's Knowledge Regarding Hepatitis B & C Among children at Pediatric Teaching Hospitals in Mosul City". The data collected from nurse's were tabulated, analyzed and interpreted by using descriptive and inferential statistics.

The findings were presented include the following parts:

Part 1: Analysis of the demographic variables of the subjects.

Part 2 : Analysis of effectiveness of Information Booklet on knowledge of subjects

A) Comparison of pre test and post test knowledge scores.

B) Area wise pretest and posttest knowledge scores.

Part 3 : Impact between knowledge scores and selected demographic variables like age and education level.

Part 1: Analysis of the demographic variables of the subjects.

Table - 4:1 Distribution by demographic variables.

Characteristics	Categories	Respondents	
		No.	%
Gender	Male	40	57%
	Female	30	43%
Total		**70**	100%
Age(years)	18 – 27	19	27%
	28 – 37	31	44%
	38 – 47	15	22%
	48 – above	5	7%
Total		**70**	100%-
Educational level	Secondary School of Nursing	15	22%
	Institution of Nursing	30	43%

	Bachelor of Science in Nursing	21	30%
	Postgraduate studies in nursing	4	5%
Total		70	100%
Experience Years	Less than 5	21	30%
	5 – 10	20	28.5%
	11 – 15	20	28.5%
	16 – 20	5	7%
	21 – above	4	6%
Total		70	100%
Site of work	Surgical Pediatric ward	10	14%
	Medical Pediatric ward	10	14%
	Intensive care unit	5	7%
	Pediatric clinic	5	7%
	Premature unit(NICU)	8	11%
	Vaccination unit	2	3.5%
	Thalassemia Center	10	14%
	Tumor and blood disease unit	5	7%
	Emergency unit	2	3.5%
	Operation Room	9	13%
	Others	4	6%
Total		70	100%
Enrolment previous of training in viral Hepatitis	Yes	25	36%
	No	45	64%
Total		70	100%
Enrolment previous of training in infection control	Yes	20	29%
	No	50	71%
Total		70	100%
Source of HBV & HCV information	Educational Subject	25	36%
	Internet and Social Media	5	7%
	Hospitals and Co workers	20	28.5%
	All of the above	20	28.5%
Total		70	100%

Table 1 demonstrations the distribution of respondents according to gender, age, education level, experience years and work site. Males were

participated (57%) more than females (43%). The maximum respondents were in the age group of 28-37 years (44%) followed by18-27 years (27%) and (22%) were found in the age group of 38-47 years. Most of the respondents (43%) were found with the educational level of nursing institution followed by 30% with a bachelor of science in nursing and further(22%) noticed with secondary school of nursing education.

The majority of the respondents emerge with experience years of less than 5 years was (30%) followed by (28.5%) with experience years for both 11-15 years and 5 -10 years. Majority of the respondents work in surgical pediatric ward, medical pediatric ward and thalassemia center of each was (14%) and followed by 13% with operation theater.

Also Showed the distribution of respondents according to Enrolment previous training in viral Hepatitis, Enrolment previous training in infection control. The highest percentages of study groups had no previous training of hepatitis (64%), while 36% had previous training of hepatitis B & C. The highest percentages of study groups had no previous training of infection control (71%) while 29% had previous training on infection control.

Also showed the respondents according to sources of information regard HBV & HCV. According to sources of HBV & HCV information, the highest percentages were 36% was of educational subject information, followed by 28.5% by hospitals and Co-workers.

Part 2 : Analysis of effectiveness of Information Booklet on knowledge of subjects

Table 4:2 Mean Knowledge scores of Pre test and Post tests regard HBV & HCV

N= 70

Aspects	Maximum Score	Mean Score	Knowledge scores		Paired t – Value
			Mean	SD	
Pre – test	26	12.5	11.1571	3.08637	21.364*
Post – test	26	18.5	20.2857	2.86479	
Enhancement	26	8	9.1286	3.57496	

*Significant at 0.05 Level

Table 62indicates the overall mean knowledge score of pre test and post test which reveals that post test mean knowledge score was found higher (20.2857 and SD of 2.86479) when compared with pre test knowledge score value which was (11.1571) with a SD of (3.08637). The statistical paired t-test implies that the difference in the pre-test and post test knowledge score found statistically significant at 0.05 level (P<0.05). Further, the mean enhancement score was(9.1286) with SD value (3.57496). The paired t-value worked out to be (21.364) reveals that there exists a statistically significant in the enhancement scores indicating the impact of the effectiveness of information booklet on Nurses knowledge regarding hepatitis B & C among children.

Table 4:3Aspect wise Mean Knowledge scores of Pre test and Post tests N= 70

Sl. No.	Aspects	Max. Score	Pre – test		Post – test		Enhancement		Paired t - Value
			Mean	SD	Mean	SD	Mean	SD	
1	General knowledge about viral hepatitis	5	2.1571	0.84503	3.8571	0.82155	1.7000	1.02646	13.857*
2	Knowledge about the liver functions & signs and symptoms of HBV&HCV	5	2.2571	0.91185	3.9286	0.83962	1.6714	1.11279	12.567*

3	Knowledge about high risk groups &mode of transmission of HBV&HCV	5	2.1714	0.86764	3.8286	0.83356	1.6572	0.91502	15.152*
4	Knowledge about diagnosis prevention & complications of HBV&HCV	5	2.0429	0.85864	3.8286	0.77966	1.7857	1.01999	14.648*
5	Knowledge about treatment , universal precautions & nurse role	6	2.5286	0.79348	4.8429	0.81000	2.3143	0.95618	20.250*
Combined		26	11.1571	3.08637	20.2857	2.86479	9.1286	3.57496	21.364*

*Significant at 0.05 Level

In the aspect of General knowledge about viral hepatitis the pre test mean was (2.1571) and the post test mean was(3.8571) with an enhancement in the knowledge by (1.7000), regarding Knowledge about liver functions & signs and symptoms of HBV&HCV, the pre-test mean was(2.2571) and the post test mean was (3.9286) with an enhancement in the knowledge by (1.6714). In Knowledge about high risk groups &mode of transmission of HBV&HCV aspect the pre- test mean was(2.1714) and the post test mean was(3.8286) with the enhancement in the knowledge by (1.6572).

In the aspect of Knowledge about diagnosis prevention & complications of HBV&HCV the pre-test mean was (2.0429) and the post test mean was (3.8286) with the enhancement in the knowledge by (1.7857).

In Knowledge about treatment , universal precautions & nurse role aspect the pre test mean was(2.5286) and the post test mean was(4.8429) with enhancement in the knowledge by (2.3143).

Regarding the overall pre test mean score was (11.1571) and the post test score was (20.2857) and the enhancement in the knowledge by (9.1286). The statistical test indicates that the enhancement in the mean knowledge scores found to be significant ($p<0.05$) for all the aspects under study. However, the higher enhancement knowledge found in the area of Knowledge about treatment , universal precautions & nurse role (2.3143) followed by Knowledge about diagnosis prevention & complications of HBV&HCV (1.7857), General knowledge about viral hepatitis (1.7000), Knowledge about liver functions & signs and symptoms of HBV&HCV (1.6714) and Knowledge about high risk groups &mode of transmission of HBV&HCV (1.6572).

Part 3 : Effect between knowledge scores and selected demographic variables (Hospitals, Gender, Age group and Educational level).

Table 4:4 Distribution the effect of hospitals (Ibn-Alatheer and Al-Khansa'a) in mean knowledge score.

Hospital	No.	Mean	Sta. Dev.	T cal.	T tab.	Sig.
Ibn-Alatheer	35	10.1714	3.42556	2.535	**1.997**	**0.014**
Al-Khansa'a	35	8.0857	3.45876		**(0.05) (68)**	

Table 4 showed the mean knowledge score of Ibn-Alatheer hospital was (10.1714) higher than Al-khansa'a hospital mean knowledge score (8.0857).

It can be concluded there are significant difference in the knowledge scores among hospital variable.

Table4: 5 Distribution the effect of gender in mean knowledge score.

Gender	No.	Mean	Sta. Dev.	T cal.	T tab.	Sig.
M	40	8.0000	3.52282	3.255	**1.997**	**0.002**
F	30	10.6333	3.10154		**(0.05) (68)**	

Table5 showed mean knowledge score of female was (10.6333) higher than mean knowledge score of male (8.0000).

It can be concluded there are significant difference in the knowledge scores among gender variable.

Table 4:6 Effect of Age group on Mean knowledge scores of Pre test and Post tests

Age	Sample (n)	Knowledge score (%)						Paired t - Value
		Pre – test		Post - test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
18 – 27	19	10.8421	3.07794	22.0000	2.26078	11.1579	3.33772	14.572*
28 – 37	31	11.8387	3.21555	19.9355	2.61961	8.0968	3.66383	12.304*
38 – 47	15	9.8667	2.94877	18.8667	3.29213	9.0000	3.20713	10.869*
48 – above	5	12.0000	1.58114	20.2000	2.5844	8.2000	2.16795	8.458*
F- test		1.610 NS		4.151*		3.326 *		

*Significant at 0.05 Level NS: Non-Significant

Table 6 shows that the effect of age group on mean knowledge scores of pre test and post tests, which reveals the post test mean scores found greater than pre test scores in all the age groups under study.

The enhancement was higher in the age group of 18 – 27years (11.1579) followed by 38 – 47 years of age with (9.0000), in the age group of 48 - above years was (8.2000), and then age group of 28 – 37 years with(8.0968).

The difference in the pre test and post test knowledge was found highly significant in all the age groups understudy ($p<0.05$). Further, F-test shows the non- significant difference in the pre test, while F-test shows the significant difference in post test and enhancement knowledge scores between age groups. The findings clearly indicate that the age has an effect on the knowledge scores of post test and enhancement knowledge.

Table 4:7 Effect of Educational level on Mean knowledge scores of Pre test and Post tests

Educational level	Sample (n)	Knowledge score (%)						Paired t - Value
		Pre – test		Post – test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
Secondary School of Nursing	15	11.3333	3.15474	20.0000	2.82843	8.6667	3.63842	9.225*
Institution of Nursing	30	11.0667	2.97035	20.3333	2.98656	9.2667	3.67595	13.807*
Bachelor of Science in Nursing	21	10.7619	3.22343	20.2381	3.06439	9.4762	3.62793	11.970*
Postgraduate studies in nursing	4	13.2500	3.30404	21.2500	0.95743	8.0000	3.16228	5.060*
F- test		0.744 NS		0.198 NS		0.288 NS		

*Significant at 0.05 Level NS: Non-Significant

Table 7 demonstrates the effect of educational level on mean knowledge scores of pre test and post test .

The pre test mean knowledge score found to be (11.3333) with educational level of respondents as Secondary School of Nursing,(11.0667) with educational level of respondents as Institution of Nursing, (10.7619) with educational level of respondents as Bachelor of Science in Nursing, and (13.2500) with educational level of respondents as Postgraduate studies in nursing.

However, the enhancement in the mean knowledge score found to be significant Statistically, as per the paired t-test.

It can be concluded with the application of F-test indicating the difference in the knowledge scores among educational levels found non-significant.

CHAPTER FIVE

DISCUSSION

Chapter Five

Discussion

This chapter presents a systematically logically meaningfully oriented interpretation of the study finding. The discussion is supported by evidence available in the literature and research studied with respect to the study objective.

5.1. Demographic variables of the subjects

5.1.1 Gender of nurses

Throughout the course of data analysis the total number of study samples was 70 nurses , it depicted that higher participated of male was 40 (57%) than female participate 30 (43%), (**Table 1**). This result is in an agreement with study done by **Mohamed , 2009** who found that (63%) of his study sample were male, which may reflect a social background, keeping females away from this job and due to the fact that most of female nurses are appointed to care for maternal and child health care, and this may be due to the fact that males cover night duties while females do not.

5.1.2 Age of nurses

The age group of (28-37yr) accounted a higher proportion (44%), (**Table 1**). This age group is considered as an adult youth, which can provide and perform nursing intervention efficiently and correctly, since most of the nurses who have many years of service period move away to the primary health sector, the younger nurses could stay in the hospital care. This is in agreement with the study conducted by **Abdulla and Abdulla, 2014**, (nurses' knowledge and practices toward Hepatitis B virus in emergency hospitals in Erbil) who show that the largest proportion of the study samples were among age groups (20-29yr). These results are consistent with other study that was conducted in Baghdad City by **(Badir**

and Al- Ani, 2012), who found that (53.3%) of his study sample were age group (30-39) years.

5.1. 3 Level of education nurses

More than half of nurses were the education of institution of nursing (43%) **(Table 1)**. These results are consistent with another study that was conducted in Erbil City by **Abdulla and Abdulla, 2014**, who found that(40%) of his study sample were graduated from institution of nursing. In addition **Al-Jubouri, 2014**, (Nurse's Knowledge about Nosocomial Infection at Hospitals in Baghdad City) who found that (45%) of his study sample were graduated from an institution of nursing, may reflect from high number of students graduated from a nursing institution than nursing college.

5.1.4 Experience Years of nurse's

Regarding the years of experience, the majority of the study group had less than five years of employment(30%), **(table 1)**. This is in agreement with the study conducted by **Abdulla and Abdulla, 2014**, who found that the largest proportion of the study samples were between one to five years. In addition **Mahmud & Sahib, 2011**who found that (29.7%) of his study sample were between one to five years. **Hickam et al., 2003**, claimed that Nurses' experience is more important than their educational levels.

5.1.5 Work site (place of work / ward)

The Sample distributed almost evenly in all ward/ unit and emergency of the hospital **(Table 1)** in the study group. In the study group (14%) for each of the surgical pediatric ward, medical pediatric ward and thalassemia center, and followed by 13% with operation theater and followed by premature unit by (11), and followed by (7%) with both Intensive care unit and Pediatric consultation and by (7%) with vaccinations. This result is in an agreement with study done by **Mustafa Wahab & Taha, 2016** who found that (13%,13%,13%,13%) respectvly of his study sample were

working in General emergency, Medical ward , Haemodialysis unite and Obstetric and gynaecological

5.1.6 Nurses Training for Prevention of Hepatitis and Infection control

Most of the nurses (64%) in study samples hadn't taken any course of education training. This is in agreement with the study conducted by **Mustafa Wahab & Taha, 2016,** (Nurses Knowledge About Hepatitis B Virus in Nineveh Governorate Hospitals) who found that (70%) in control groups, this may be related to the lack of such educational programs **(Table 1)**, also the majority of nurses in our study had a few years of experience during which the mosul has unstable situation.

Regard infection control most of the nurses hadn't taken any course of training in such educational sessions previously (71%) in study samples, this may be related to the lack of such educational programs **(Table 1)**.These results agree with **Mahmud and Sahib, 2011 in** Baghdad City who revealed that majority of nurses (91.9%) have not attended training sessions regarding infection control. Flexible employment strategies will allow nursing personnel to undertake courses relevant to their own learning need and practice learning takes place through many different means, including short courses, conferences and distance learning programs **WHO, 2003.**

5.1.7 Source of HBV & HCV information

According to the source of HBV & HCV information, the highest percentages (36%) were from educational subject information and followed by 28.5% with hospitals and Co-workers in study samples **(table 1)**. This is in agreement with the study conducted by **Abd El-Nasser, 2013**, (students knowledge and attitude toward hepatitis B and C in Sohag University/Egypt) who found that the information from Classroom lectures and doctors was (32.5%) and followed by (24.4%) with

Family/friends/neighbors information. This result disagrees with **Paudel et al., 2012 (**Nursing Students knowledge regard HBV in Nepal) who found that of the most potent source of information was a radio/television (83.6 %) followed by poster / booklets (46.8%), newspaper (40.8%), teachers (39.7% and friends (37.1%).

5.2 Nurse's pre-test score

Prior the implementation of the educational program, a pre-test was carried out on study groups. The study found that the overall pre test mean score was (11.1571) from (26) as shows in **(Table 3)**. The researcher shows that this is insufficient knowledge because none of them attended any training session about knowledge related to HBV & HCV, this study is calls for efforts are to be made to explore the reasons behind such insufficient knowledge and understand whether the actual problem is in the medical curriculum. This is in agreement with the study conducted by **Ghafel, 2019,** who found that (88.7%) of the Iraqi midwives and nurses are having poor level of knowledge about hepatitis C virus while only (11.3%) of them are showing fair level of knowledge, where it was found that the knowledge is correlated positively with the behavior, A contributing factor for the transmission of Hepatitis B and C virusin developing countries is poor awareness of the population , almost all types of health care workers are at the risk of having Hepatitis B and C virus and they must acquire a higher level of knowledge for protection.

5.3 Nurse's post-test score

After the implementation of the information booklet on the study group, post-test was administered to both groups two weeks after the program. Results indicated that there is a significant difference in the post-test for study group **(Table3)**. The knowledge respondents in the pretest assessment of the education program indicates that there were low score findings in study group (M =11.1571) as shown in **(Table 3)**, this means

that nurses have had inadequate knowledge in concerning to HBV & HCV while the knowledge respondents in post test assessment of educational program that were high score findings in study group (M =20.2857) with the enhancement in the knowledge by (9.1286). This indicates the effect of the Information Booklet on nurses knowledge regard HBV & HCV. The statistical paired t-test shows the significant result in enhancing the knowledge scores between pre test and post test for all the aspects under study (highly significant improvement effect on knowledge respondents) .

This result agrees with **Mustafa Wahab & Taha, 2016,** this study showed that knowledge of nurses about HBV was inadequate before the educational program (pre test 22.2667) and improved after participation in the program (post test 42.1000).

This result agrees with **Abdulla and Abdulla, 2014,** which showed that knowledge of nurses about HBV and the uses of preventive measures was inadequate before the information booklet, and improved after participation in the program.

Similarly, a study conducted by **Abou Shady et al., 2001** in Mansoura Egypt noticed a certain increase in staff's knowledge about viral hepatitis and their compliance with preventive precautions from pretest to posttest. This study showed higher statistically significant differences between knowledge about universal precautions related blood and body fluids from pre and post education.

This result is also supported by **Saleh et al., 2009** applying the health education intervention was successful in raising the knowledge about transmission and prevention of BBP (Blood-Borne Pathogens), improving the risk perception and increasing to some extent the compliance to practicing universal and safety precautions. This positive impact of health education intervention was also previously demonstrated by studies conducted elsewhere.

Kim et al., 2001 in Korea , also found that the group of nurses and medical students who had received education on the UP (Universal Precautions) showed significantly higher knowledge (p=0.036) and performance (p<0.001) levels than the group that had not received similar training.

Our result is also supported by **WHO, Geneva, 2009** who indicates that attending of educational program improves and develops the nurse knowledge & practices and attitude**. Calabro et al., 1998** was founded a significant improve in staff's knowledge score regard hepatitis C virus (HCV) infection control of the pre-test to the post-test.

5.4. Effect between knowledge scores and selected demographic variables (Hospitals, Gender, Age group and Educational level):

5.4.1 Hospitals

Table **(4)** showed the mean knowledge score of Ibn-Alatheer hospital was (10.1714) higher than Al-khansa'a hospital mean knowledge score (8.0857), may this reflect of Ibn-Alatheer hospital have thalassemia center deal with patients have HBV & HCV regularly, it can be concluded there are significant difference in the knowledge scores among hospitals variable.

5.4.2 Gender

Table **(5)** showed mean knowledge score of female was (10.6333) higher than mean knowledge score of male (8.0000).

It can be concluded there are significant difference in the knowledge scores among gender variable. This result agrees with **Villar, Silva, & de Paula, 2017** who found that score of female was (12.51) higher than mean knowledge score of male(11.89). This result disagrees with **Mustafa**

Wahab & Taha, 2016 who found that the success rate of male (44.1667) nurses was higher than female nurses (39.0000).

5.4.3 Age (years)

Table **(6)** shows a significant difference between the pre-test and post-test score of HBV & HCV knowledge with regard to age of nurses, which reveals the post test mean scores found greater than pre test scores in all the age groups under study. The mean enhancement was higher in the age group of 18 – 27 years (11.1579) and most of nurses in the study group was between (28-37) years old, this age considered young age and have good years of experience. F-test shows the non-significant difference in the pre test, while F-test shows the significant difference in post test and enhancement knowledge scores between age groups. These results may also be explained by the fact that the information included in the booklet was clear , simple, and sufficient and it was appropriate for cognitive abilities of all age groups. This result agrees with **(Al-Augoidy, 2000)**,who stated that general and theoretical information increase as the age advance.

5.4.4 Educational level

s knowledge scores ‘ Table **(7)** showed a significant difference in nurse regarding the educational level in post-test of the study group at P-value ≤0.05. This means that educated nurses lead to high scores of knowledge. The level of education may affect the knowledge of nurses.

This result agrees with **Mohamed and Wafa, 2011** who proved that there was significant correlation between post-test scores and the level of education of nurses. **Ghahramani et al., 2006** founded that there was a statistical significant correlation between knowledge of hepatitis and level of education. The level of education may affect the performance of nurses **AL-Simady, 2006; Najem, 2004**, also referred that education helps to define what a nurse is able to do and what he or she can be expected to do **Coile, 2005.** While it can be concluded with the application of F-test

indicating the difference in the knowledge scores among educational levels found non-significant.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

Chapter Six

Conclusions and Recommendations

6.1. Conclusions

Relative to the discussion and interpretation of the study which conclude that:

6.1.1 - Inadequate nurses knowledge regarding general information to hepatitis B & C.

6.1.2 Information booklet was effectiveness to improve the nurse's knowledge regarding Hepatitis B & C.

6.1.3 The demographic characteristics have effect on nurses knowledge score.

6.2.Recommendations

Depending on the findings and conclusions of the study, the researcher recommended that:

6.2.1 Ministry of health is recommended to prepare a comprehensive guidebook on hepatitis B virus(HBV) and hepatitis C virus(HCV) in order to raise nurse‘s knowledge of this disease at all hospitals.

6.2.2 Repeatedly regular courses of training on HBV & HCV are recommended in order to ensure nurse‘s knowledge and efficiency in this regard, and confidence of dealing with patients having this disease.

6.2.3 Nurse's schools, institutes and colleges need to have educational program on HBV & HCV in their curriculums.

6.2.4 It is recommended to have a booklet about the instructions and the rules to prevent the spread of HBV & HCV in all departments of the hospitals.

6.2.5 The information booklet proved it to be one of the effective teaching methods of information transmission. It was well appreciated and accepted by the subjects and helped them learn more about hepatitis B & C, which was evident in the post-test knowledge score.

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APPENDICES

Appendix (A1)

Ministry of Higher Education
& Scientific Research
University of Mosul

وزارة التعليم العالي والبحث العلمي
جامعة الموصل
كلية التمريض
شعبة الدراسات العليا

بسم الله الرحمن الرحيم

NO: ٦٤٣٠
Date: ٢٠١٩/٩/٢٦

العدد: ١٧٤٧
التاريخ: ٢٠١٩/٩/٢٦

إلى / دائرة صحة نينوى / مركز تدريب وتطوير الملاكات
م / تسهيل مهمة

تحية طيبة :

يرجى تسهيل مهمة طالب الماجستير عمر خير الدين خالد / كلية التمريض لزيارة المستشفيات والمراكز الصحية التابعة لدائرتكم لأجراء البحث الموسوم (تأثير كتيب المعلومات على معارف الممرضين / الممرضات فيما يتعلق بالالتهاب الكبد الفيروسي نوع بي ونوع سي بمستشفيات الاطفال في مدينة الموصل) .

(Effectiveness of information booklet on Nurses knowledge Regarding Hepatitis B&C among children at pediatric hospitals in Mosul city).

شاكرين تعاونكم معنا ... مع التقدير

أ.د رضوان حسين ابراهيم
عميد كلية التمريض بالوكالة

نسخة منه إلى :
- الدراسات العليا / مع الاوليات
- نسخة الدائرة

E-Mail:

University of Mosul
Mosul – Iraq
☎( )

جامعة الموصل
الموصل – العراق
☎ ( ) داخلي

Appendix (A2)

وزارة الصحة والبيئة
دائرة صحة نينوى
مركز التدريب والتنمية البشرية
العدد: ٦ ٢٨٧٠
التاريخ: ٢٠١٩/١٠/٠٠

Ministry Of Health and Environment
Nineveh Health Directorate
Training Center & Human Development

إلى/ مستشفى الخنساء التعليمي
مستشفى ابن الاثير للاطفال

م/ تسهيل مهمة

تحية طيبة ...

استناداً الى موافقه لجنة البحوث العلمية والأخلاقية بجلستها المرقمة (١٨٩) والمنعقدة في دائرتنا بتاريخ ٢٠١٩/١٠/٧ على مشروع البحث المرقم (١٣٤/١٩) . حصلت الموافقة على إجراء البحث ضمن الخطة المقدمة لمشروع البحث المدرج تفاصيله فيما يأتي :

عنوان البحث :

Effectiveness of information booklet on nurses knowledge regarding hepatitis B&C among children at pediatric Teaching Hospital in Mosul city

اسم الباحث: عمر خير الدين خالد (رسالة ماجستير)

مدة البحث : من ٢٠١٩/١٠/٧ الى ٢٠٢٠/٩/١

نرجى تزويده بالمعلومات والعينات المطلوبة من الإمكانيات المتاحة على أن لا تتحمل وزارة الصحة والمؤسسات التابعة لها أي تبعات مادية. وعلى الباحث تقديم نسخة من البحث بعد الانتهاء منه إلى لجنة البحوث.

لتفضل بالاطلاع ... مع الاحترام

الطبيب الاختصاص
جاسم ابراهيم هيجل المعماري
المدير العام / وكالة
٢٠١٩/١٠/٠٠

نسخة منه الى :
- مكتب المدير العام / للعلم مع الاحترام
- جامعة الموصل / كلية الطب بكتابكم ذي العدد ١٧٢٧ في ٢٠١٩/٩/٢٦ نرجى تبليغ الباحث والمشرف بتسليمنا نسخة من الأطروحة أو البحث بعد طبعها وإقرارها مع التقدير
- مركز التدريب والتنمية البشرية - شعبة ادارة المعرفة ... مع الاولويات

mslhrtdc@gmail.com

Appendix (A3)

وزارة الصحة والبيئة
دائرة صحة نينوى
مركز التدريب والتنمية البشرية
العدد: ٢٨٧٩
التاريخ: ٢٠١٩/١٠/٠٩

Ministry Of Health and Environment
Nineveh Health Directorate
Training Center & Human Development

إلى/ مستشفى الخنساء التعليمي
مستشفى ابن الاثير للاطفال

مستشفى الخنساء التعليمي
الواردة
العدد ٦١٦٤
التاريخ ٢٠١٩/١٠/١٤

م/ تسهيل مهمة

تحية طيبة ..

,استناداً الى موافقه لجنة البحوث العلمية والأخلاقية بجلستها المرقمة (١٨٩) والمنعقدة في دائرتنا بتاريخ ٢٠١٩/١٠/٧ على مشروع البحث المرقم (١٣٤/١٩) . حصلت الموافقة على إجراء البحث ضمن الخطة المقدمة لمشروع البحث المدرج تفاصيله فيما يأتي :

عنوان البحث :

Effectiveness of information booklet on nurses knowledge regarding hepatitis B&C among children at pediatric Teaching Hospital in Mosul city

اسم الباحث: عمر خير الدين خالد (رسالة ماجستير)

مدة البحث : من ٢٠١٩/١٠/٧ الى ٢٠٢٠/٩/١

يرجى تزويده بالمعلومات والعينات المطلوبة من الإمكانيات المتاحة على أن لا تتحمل وزارة الصحة والمؤسسات التابعة لها أي تبعات مادية. وعلى الباحث تقديم نسخة من البحث بعد الانتهاء منه إلى لجنة البحوث.

للتفضل بالاطلاع ... مع الاحترام

الطبيب الاختصاص
جاسم ابراهيم هيجل المعماري
المدير العام / وكالة
٢٠١٩/١٠/٩

نسخة منه الى:
- مكتب المدير العام / للعلم مع الاحترام
- جامعة الموصل / كلية التمريض كتابكم ذي العدد ١٧٢٧ في ٢٠١٩/٩/٢٦ يرجى تبليغ الباحث والمشرف بتسليمنا نسخة من الأطروحة أو البحث بعد طبعها وإقرارها مع التقدير
- مركز التدريب والتنمية البشرية - شعبة ادارة المعرفة ... مع الاولويات

mslhrtdc@gmail.com

Appendix (A3)

استمارة موافقة الممرض على المشاركة بالاستبيان

استمارة موافقة الممرض على المشاركة بالاستبيان بعد أن قام الباحث الطالب (عمر خيرالدين خالد السلطان) بشرح مشروع البحث بتفصيل وأجاب عن كل استفساراتي المتعلقة بمشاركتي بالبحث بعنوان: (تأثير كتيب المعلومات على معارف الممرضين تجاه التهاب الكبد الفيروسي نوع بي و سي لدى الاطفال في مستشفيات الاطفال في مدينة الاطفال).

وأطلعني الباحث عن فوائد بحثه وأهميته العلمية والعملية. كما أوضح بان مشاركتي فيه تطوع مئي وبمحض إرادتي وأن باستطاعتي رفض المشاركة كما أن بإمكاني سحب مشاركتي من الدراسة منى شئت ولأي سبب أو أن لا أجيب على أي سؤال لا ارغب في إجابته، كما تم إعلامي بان مشاركتي بالبحث لن تحملني أي نفقات اور مسائلة من شانها الضرر بمهنتي أو شخصي. وإن المعلومات الناتجة عن مشاركتي سوف تعامل بسرية تامة ولن يطلع عليها أي شخص غير معني بالبحث وأن هذه المعلومات ونتائجها هي للأغراض العلمية فقط ولن تكون هناك أية إشارة إلى شخصي أو عائلتي في أي منشور عن هذه الدراسة ، ولأجل هذا فائي أصادق على مشاركتي في هذا البحث .

توقيع المشارك..... التاريخ / /

توقيع المشارك..... التاريخ / /

Appendix (B1)

بسم الله الرحمن الرحيم

((استمارة الاستبانة))

عزيزتي الممرضة ..... عزيزي الممرض .....

المعلومات والإجابات التي ستدون في هذه الاستمارة من قبلكم ستساعد في تقييم مستوى معارف الممرضين حول التهاب الكبد الفيروسيل نمط بي ونمط سي في الأطفال، وبناء على إجاباتكم سيتم تصميم كتيب يساعد في رفع مستوى المعارف في هذا المجال ، علما أن المعلومات ستكون سرية وخاصة بالبحث وبدون ذكر الاسم .

ولكم فائق الشكر والاحترام ....

عنوان الاطروحة :

تأثير كتيب المعلومات على معارف الممرضين حول التهاب الكبد الفيروسي نمط بي ونمط سي لدى الأطفال في مستشفيات الأطفال التعليمية بمدينة الموصل

Effectiveness of Information Booklet on Nurses' Knowledge Regarding Hepatitis B & C Among children at Pediatric Teaching Hospitals in Mosul City

الباحث

عمر خيرالدين خالد

طالب ماجستير/ تمريض الاطفال

جامعة الموصل/كلية التمريض

المشرف

أ. م.د.مازن محمود فوزي

أخي الممرض /أختي الممرضة يرجى قراءة الأسئلة التالية ثم وضع إشارة (/) في حقل الاختبار المناسب.

اولا//معلومات الاجتماعية حول الممرضين العاملين في مستشفى الاطفال التعليمية :

1)-أسم المستشفى:-

1.1- مستشفى أبن الأثير ☐

2.1- مستشفى الخنساء ☐

2)- الجنس:-

1.2- ذكر ☐ **2.2-أنثى** ☐

3)- العمر :-

1.3- (18 - 27)سنة ☐

2.3- (28 - 37)سنة ☐

3.3- (38 –47)سنة ☐

4.3- (48)سنة فأكثر ☐

4)- التحصيل الدراسي :-

1.4- إعدادية التمريض ☐

2.4- دبلوم تمريض ☐

3.4- بكالوريوس في علوم التمريض ☐

4.4- دراسات عليا في التمريض ☐

5)- سنوات الخدمة :-

1.5-(أقل من خمس سنوات) ☐ **2.5- (5 – 10)سنة** ☐

3.5- (11 – 15)سنة ☐ **4.5- (16 – 20)سنة** ☐

☐

5.5- (21)سنة فأكثر

6)- مكان العمل :-

1.6- ردهة الاطفال جراحة ☐

2.6- ردهة الاطفال باطنية ☐

3.6- العناية المركزة ☐

4.6- استشارية الاطفال ☐

5.6- الخدج ☐

6.6- اللقاحات ☐

7.6- مركز الثلاسيميا ☐

8.6- ردهة الأورام وأمراض الدم ☐

9.6- الطوارئ ☐

10.6- العمليات ☐

11.6- أخرى ☐

7)- هل سبق وشاركت بدورات تدريبية في الوقاية من التهاب الكبد الفيروسي؟

1.7- نعم ☐ 2.7- كلا ☐

8)- هل سبق وشاركت بدورات تدريبية حول السيطرة على العدوى؟

1.8- نعم ☐ **2.8- كلا** ☐

9)- ما هو مصدر معلوماتك حول التهاب الكبد الفيروسي نمط (بي) ونمط (سي)؟

1.9- مناهج الدراسة ☐

2.9- الإنترنيت ووسائل التواصل الأجتماعي ☐

3.9- المستشفى والزملاء ☐

4.9- كل ما ذكر أعلاه ☐

5.9-أخرى ☐

ثانيا: المعارف المتعلقة بالتهاب الكبد الفيروسي نمط بي ونمط سي للأطفال:

الجزء الاول//معارف الممرضين حول التهاب الكبد الفيروسي نمط بي ونمط سي بشكل عام(المقدمة والكبد)

1.	**أنواع التهاب الكبد الفيروسي**	
	أ.	خمسة أنواع (A, B, C, D, E,)
	ب.	أربعة أنواع(A, B, C. D,)
	ج.	ثلاثة أنواع (A, B, C,)
	د.	نوعان (A, B)
2.	**نتيجة عواقب التهاب الكبد الفيروسي نمط بي وسي الحادة والمزمنة يموت سنويا حوالي؟**	
	أ.	400 ألف شخص
	ب.	600 ألف شخص
	ج.	300 ألف شخص
	د.	200 ألف شخص
3.	**المرضى المصابين بالتهاب الكبد الفيروسي نمط سي تتحول اصابتهم الى التهاب مزمن مدى الحياة وتتراوح نسبتهم حوالي؟**	
	أ.	75-85% من المصابين بالفيروس
	ب.	50-75% من المصابين بالفيروس
	ج.	25-50% من المصابين بالفيروس
	د.	10-25% من المصابين بالفيروس
4.	**أنواع التهاب الكبد الفيروسي الذي ينتقل عن طريق الدم وسوائل الجسم**	
	أ.	التهاب الكبد نمط B, C
	ب.	التهاب الكبد نمط A, E
	ج.	التهاب الكبد نمط E, D

	د.	التهاب الكبد نمط A, D
5.	**الكبد هو أكبر عضو في جسم الإنسان يوجد في**	
	أ.	أعلى تجويف البطن في الجانب الأيسر تحت الضلوع
	ب.	أسفل تجويف البطن في الجانب الأيمن
	ج.	أسفل تجويف البطن في الجانب الأيسر
	د.	أعلى تجويف البطن في الجانب الأيمن تحت الضلوع

الجزء الثاني//معارف الممرضين حول وظائف الكبد ، وأعراض التهاب الكبد الفيروسي

1.	**من الوظائف المهمة للكبد**	
	أ.	تكوين كريات الدم الحمراء
	ب.	أفراز الأنسولين
	ج.	تحويل الغذاء إلى طاقة إضافة إلى تنقية الدم من السموم والأدوية
	د.	أفراز هرمون الاستروجين
2.	**المصابين الاطفال والكبار بالتهاب الكبد الفيروسي نمط بي ونمط سي لا تبدو عليهم اعراض بعد الاصابة بالعدوى لفترة طويلة وقد تظهر بعض الاعراض عليهم مثل**	
	أ.	غثيان وتعب
	ب.	، حمى و يرقان
	ج.	ألام في البطن و قيئ
	د.	كل ما ذكر أعلاه
3.	**ما هي مراحل(حالات) التهاب الكبد الفيروسي نمط بي ونمط سي**	
	أ.	الحالة المشتبه
	ب.	الحالة المحتملة
	ج.	الحالة المؤكدة

	د.	الالتهاب الحاد والالتهاب المزمن
4.	**يحدث التهاب الكبد الفيروسي الحاد عندما يصاب الأطفال والكبار بفيروس الكبد للمرة الاولى وتظل العدوى لفترة**	
	أ.	أقل من ستة أشهر
	ب.	أقل من أربعة أشهر
	ج.	أقل من ثلاثة أشهر
	د.	أقل من شهرين
5.	**يحدث التهاب الكبد الفيروسي المزمن عندما يصاب الأطفال والكبار بفيروس الكبد وتظل العدوى لفترة**	
	أ.	أكثر من ثمانية أشهر
	ب.	أكثر من تسعة أشهر
	ج.	أكثر من ستة أشهر
	د.	أكثر من عشرة أشهر

الجزء الثالث//معارف الممرضين حول المجاميع المعرضة لخطورة العدوى وطرق انتقال العدوى وطرق عدم انتقال العدوى

1.	**من المجاميع المهمة المعرضة للخطورة الاصابة بالتهاب الكبد الفيروسي**	
	أ.	الملاكات الصحية في المؤسسات الصحية وحدات الكلية الاصطناعية
	ب.	المرضى المصابين بإمراض الدم الوراثي (الثلاسيميا)
	ج.	العاملين في الحلاقة والقبالة والختانين
	د.	كل ما ذكر اعلاه
2.	**يتم اجراء فحص التهاب الكبد الفيروسي نمط بي ونمط سي للأطفال والكبار المصابين بأمراض الدم الوراثي (الثلاسيميا) كل**	
	أ.	كل اربعة اشهر

	ب.	كل ثلاثة اشهر
	ج.	كل شهرين
	د.	كل خمسة أشهر
3.	**يمكن للام المصابة بالتهاب الكبد نمط بي ونمط سي نقل العدوى الى وليدها خلال**	
	أ.	الرضاعة الطبيعية
	ب.	الولادة الطبيعية
	ج.	الولادة القيصرية
	د.	كل ما ذكر أعلاه
4.	**من طرق انتقال عدوى التهاب الكبد الفيروسي لدى الأطفال والكبار هو عن طريق الدم وذلك من خلال**	
	أ.	استعمال المعدات الطبية الغير معقمة
	ب.	انتقال العدوى من الأم للوليد حيث يمكن للمرأة الحامل المصابة ان تنقل التهاب الكبد الى وليدها عند الولادة
	ج.	، مشاركة أدوات العناية الشخصية مع الآخرين مثل فرشاة الأسنان إضافة إلى طرق نقل الدم أو منتجات الدم الغير مفحوص
	د.	كل ما ذكر أعلاه
5.	**من الطرق التي لا تنقل التهاب الكبد الفيروسي هي**	
	أ.	، التقبيل، العطس اضافة الى لسع البعوض
	ب.	تبادل الأطباق والأكواب
	ج.	المصافحة، المعانقة
	د.	كل ما ذكر أعلاه

الجزء الرابع معارف الممرضين حول التشخيص و الاجراءات الوقائية و التحصين و مضاعفات التهاب الكبد الفيروسي

1.	**الفحوصات الطبية المنتظمة لالتهاب الكبد الفيروسي نمط بي ونمط سي هي**	
	أ.	الاجسام المضادة والمستضدات (Anti-Hbe) (HBe-Ag) (Anti-HCV) (HCV-Ag)
	ب.	الهيموغلوبين
	ج.	كريات الدم الحمراء
	د.	مستوى السكر في الدم
2.	**مضاعفات التهاب الكبد الفيروسي نمط بي ونمط سي هي**	
	أ.	فشل رئوي
	ب.	تشمع الكبد، سرطان الكبد اضافة الى فشل كبدي
	ج.	فشل كلوي
	د.	كل ما ذكر اعلاه
3.	**هل يوجد لقاح ضد التهاب الكبد الفيروسي نمط بي ونمط سي؟**	
	أ.	لا يوجد لقاح ضد التهاب الكبد الفيروسي نمط بي ونمط سي
	ب.	يوجد لقاح ضد التهاب الكبد الفيروسي نمط بي ونمط سي
	ج.	يوجد لقاح ضد التهاب الكبد نمط بي ولا يوجد لقاح ضد التهاب الكبد نمط سي
	د.	يوجد لقاح ضد التهاب الكبد الفيروسي نمط سي ولا يوجد لقاح ضد التهاب الكبد نمط بي
4.	**اعطاء مصل (HBIG)التهاب الكبد نمط بي لحالات معينة بهدف اعطاء مناعة اولية وسريعة لحالات معينة منها**	
	أ.	للكوادر الصحية كافة
	ب.	للأطفال المولودين حديثا
	ج.	الاشخاص الملامسين للمصابين
	د.	للطفل المولود حديثا لام مصابة، للزوج او الزوجة اذا اصيب احدهما بالتهاب الكبد الفيروسي نمط بي أضافة الى عند تعرض المعالجين للجرح او الوخز بأدوات ملوثة بدم اشخاص مصابين او حاملين للمرض

.5	**من الاجراءات الوقائية المهمة ضد التهاب الكبد نمط بي ونمط سي هي**	
	.أ	عدم مصافحة المرضى المصابين
	.ب	نشر التوعية والارشاد في المجتمع حول المرض وطرق انتقاله اضافة الى التأكيد على عدم التبرع بالدم او استلامة الا بعد التأكد من سلامته من فيروسات التهاب الكبد الفيروسي
	.ج	عدم معانقة المصابين
	.د	عدم تقبيل المصابين

الجزء الخامس معارف الممرضين حول العلاج والاحتياطات القياسية لضبط العدوى ودور الممرض تجاه مرضى التهاب الكبد الفيروسي

.1	**الادوية المستخدمة لعلاج التهاب الكبد الفيروسي نمط بي ونمط سي**	
	.أ	عقار ال ميترونيدازول (عن طريق الحقن او الفم)
	.ب	عقار ريفامبيسين كبسول
	.ج	عقار ال سبروفلوكساسين اقراص
	.د	عقار ال إنترفيرون(عن طريق الحقن او الفم) وعقار ال ريبافيرين(اقراص او كبسولات)
.2	**من ضمن الاحتياطات القياسية لضبط عدوى التهاب الكبد الفيروسي هي**	
	.أ	نظافة الايدي حيث يعتبر فرك الايدي بالمطهر الكحولي هو المعيار الذهبي للعناية بنظافة الايدي
	.ب	لبس وسائل الحماية الشخصية اضافة الى تنظيف وتطهير وتعقيم المعدات الطبية
	.ج	السلامة والصحة المهنية(اعطاء اللقاحات اللازمة)
	.د	كل ما ذكر أعلاه
.3	**وسائل الحماية الشخصية لضبط العدوى تتضمن**	
	.أ	واقيات العين والقفازات ويجب اتباع الطرق السليمة عند ارتداء المعدات و عند خلعها

	ب.	الكمامات والعباءات ويجب اتباع الطرق السليمة عند ارتداء المعدات و عند خلعها
	ج.	القفازات والكمامات وواقيات العين والعباءات ويجب اتباع الطرق السليمة عند ارتداء المعدات و عند خلعها
	د.	الكمامات والعباءات و القفازات ويجب اتباع الطرق السليمة عند ارتداء المعدات و عند خلعها
4.	**من ضمن إجراءات التعامل مع مرضى العمليات الباردة المصابين بالتهاب الكبد الفيروسي نمط بي ونمط سي هي**	
	أ.	يتم اجراء العمليات للموجبين لأي من النوعين بأدوات جراحية خاصة تهيء لهذا الغرض
	ب.	يقوم كافة الجراحين والكوادر المساعدة بارتداء البسة العمليات الكاملة ومنها زوجين من الكفوف المطاطية والماسك والنظارات الخاصة بالعمليات
	ج.	تخضع الاجهزة والادوات الطبية المستخدمة للحالات الموجبة لأشد عمليات التنظيف والتطهير والتعقيم بعد استخدامها
	د.	كل ما ذكر أعلاه
5.	**من ضمن دور الممرض في رعاية مرضى التهاب الكبد نمط بي ونمط سي هي**	
	أ.	يلعب ممرضي امراض الكبد دورًا مهمًا في تثقيف الأصدقاء / الاعضاء المقربين من المرضى الذين يعانون من التهاب الكبد المزمن ليتم اختبارهم وتطعيمهم
	ب.	يقوم الممرض بوصف العقار والعلاج المناسب
	ج.	تشخيص المرض
	د.	وصف واجراء فحوصات مختبرية
6.	**الاجراءات التمريضية في حالة اصابة الكادر الطبي بالوخز بالابراو المعداة الحادة الملوثة بدم المريض هي ؟**	
	أ.	غسل الجرح بالماء والصابون
	ب.	تبليغ المشرف المسؤول وكتابة تقرير الاصابة في مكان العمل
	ج.	اجراء الفحوصات التالية نقص المناعة الوراثي والتهاب الكبد الفيروسي نوع B ونوع C للشخص المصاب بالوخز من الكادر الطبي والشخص مصدر الدم الملوث
	د.	كل ما ذكر اعلاه

Appendix

Form pre-test and post-test for information booklet measure Nurses' knowledge about hepatitis (B & C) virus.

Research title: Effectiveness of Information Booklet on Nurses' Knowledge Regarding Hepatitis B & C Among children at Pediatric Teaching Hospitals in Mosul City).

Dear nurses...

Please read the following questions and then put the sign (/) in the suitable selection field.

I. Demographic Information:

1- Name of hospital

1.1 Ibn Alatheer teaching hospital ☐

1.2 Al Khansa'a hospital ☐

2. Gender

2.1 Male ☐ 2.2 Female ☐

3 - **Age**

3.1 (18-27) year ☐

3.2 (28 - 37) year ☐

3.3 (38 - 47) year ☐

3.4 (48 -57) year ☐

4- Educational level

4.1 Secondary School of Nursing ☐
4.2 Institution of Nursing ☐
4.3 Bachelor of Science in Nursing ☐
4.4 Postgraduate studies in nursing ☐

5-Years of Employment

5.1 Less than 5 years ☐
5.2 (5-10) year ☐
5.3 (11-15) year ☐
5.4 (16- 20) year ☐
5.5 (more than 21) year ☐

6- Work site (place of work/ward):

6.1 Pediatric surgical ward ☐
6.2 Pediatric medical ward ☐
6.3 Intensive care unit ☐
6.4 Pediatric consultation ☐
6.5 Premature unit ☐
6.6 Vaccinations ☐
6.7 Thalassemia center ☐
6.8 Tumor and blood disease unit ☐
6.9 Emergency unit ☐
6.10 Operating Room ☐
6.11 Others ☐

7- Have you enrolment previous training at prevention from hepatitis ?

7.1 Yes ☐ 7.2 No ☐

8 - Have you enrolment previous training at control of infection?

8.1 Yes ☐ 8.2 No ☐

9- Source of HBV & HCV information:

9.1 Undertake study ☐
9.2 Internet and social media ☐
9.3 Coworkers / hospitals ☐
9.4 All of the above ☐
9.5 Others ☐

قائمة الخبراء

ت	اسم الخبير	اللقب العلمي	الشهادة والاختصاص	مكان العمل	سنوات الخدمة
1	د.رضوان حسين ابراهيم	استاذ	دكتوراه صحة مجتمع	كلية التمريض / جامعة الموصل	24سنة
2	د.سلوى حازم المختار	استاذ	دكتوراه صحة الام والطفل	كلية التمريض / جامعة الموصل	24سنة
3	د.يسرى احمد حسين	استاذ مساعد	بورد اطفال (دكتوراه)	كلية طب نينوى / جامعة نينوى	34سنة
4	د.فارس غانم احمد	استاذ مساعد	دكتوراه احصاء طبي	كلية طب الاسنان / جامعة الموصل	31سنة
5	د.رفاعي ياسين حميد	استاذ مساعد	دكتوراه صحة مجتمع	المعهد التقني / الموصل	28سنة
6	د.نشوان مصطفى الحافظ	استاذ مساعد	بورد اطفال (دكتوراه)	كلية طب نينوى / جامعة نينوى	24سنة
7	د.رياض عبداللطيف عبدالرحمن	استاذ مساعد	بورد اطفال (دكتوراه)	كلية الطب / جامعة الموصل	30سنة
8	د.ربيع الدبوني	استاذ مساعد	بورد اطفال (دكتوراه)	كلية الطب / جامعة الموصل	27سنة
9	د.تحسين محسن حسين	استاذ مساعد	دكتوراه تمريض بالغين	كلية التمريض / جامعة الموصل	17سنة
10	د.عبدالكريم غانم عبدالعزيز	مدرس	دكتوراه تمريض اطفال	كلية التمريض / جامعة الموصل	30 سنة
11	د.سعد حسين مراد	مدرس	دكتوراه تمريض بالغين	كلية التمريض / جامعة الموصل	16سنة
12	د.عبداللة زهير اليوزبكي	مدرس	بورد امراض الجهاز الهضمي والكبد (دكتوراه)	كلية الطب / جامعة الموصل	15سنة
13	د.معتز عبدالجواد العاني	طبيب اختصاص	بورد اطفال (دكتوراه)	دائرة صحة نينوى / مستشفى الخنساء	22سنة

الأهداف

تم أعداد هذا الكتيب بصورة مبسطة ليكون دليلا استرشاديا في متناول جميع الممرضين وكمرجع لهم، ويهدف هذا البرنامج الى:

1: توضيح الصورة الحقيقية للالتهاب الكبد الفيروسي نمط B ونمط C حتى يمكن الممرض ان يتعامل مع هذا المرض..

2: نشر الوعي الصحي بين الملاكات التمريضية للوقاية من المرض وطرق السيطرة على العدوى والتي تعتبر ذات أهمية قصوى لحماية الأصحاء والإقلال من نسبة الإصابة بالتهاب الكبد الفيروسي نمط B ونمط C.

3: زيادة معارف الممرضين تجاه التهاب الكبد الفيروسي نمط B ونمط C .

4: تركيز على أهمية الاحتياطات القياسية لضبط عدوى التهاب الكبد الفيروسي للكادر التمريضي .

المقدمة

التهاب الكبد الفيروسي بكافة انواعه المعروفة (A,B,C,D,E،) يحدث في مختلف الفئات العمرية ويصيب خلايا الكبد بشكل خاص وتتشابه الاصابة بكافة الانواع من النواحي السريرية الا انها تختلف من حيث نوع الفيروس المسبب وطرق العدوى ونتائج المرض وغيرها. ويعتبر من اخطر المشاكل الصحية التي تواجه الصحة العامة في العالم وفي العراق لكون طرق انتقال النوعين (A&E) تعتمد على البنية التحتية للبلد ، في عدم توفر ماء صالح للشرب وطعام آمن وفقدان النظافة في اغلب مفاصل الحياة وغيرها وتمثل الاصابة بهذين النوعين أصابات حادة فقط ولاتوجد حالات مزمنة ولا يحتاج الى علاج تخصصي لهذين النوعين. اما النوعين (B&C) اللذان ينتقلان عن طريق الدم وسوائل الجسم فأن حالات الاصابة الحادة بهذين النوعين ممكن أن تتحول الى حالات مزمنة .

اما فيروس التهاب الكبد D هو فيروس يستلزم تنسّخه وجود فيروس التهاب الكبد B. ولا تحدث العدوى بفيروس التهاب الكبد D إلا بطريقة متزامنة أو بوصفها عدوى إضافية إلى جانب فيروس التهاب الكبد B، ويعتبرالتهاب الكبد الفيروسي نمط B مشكلة صحية عالمية رئيسية في الحقيقة المرض ياتي في الترتيب الثاني بعد التبغ كسبب للإصابة بسرطان الكبد

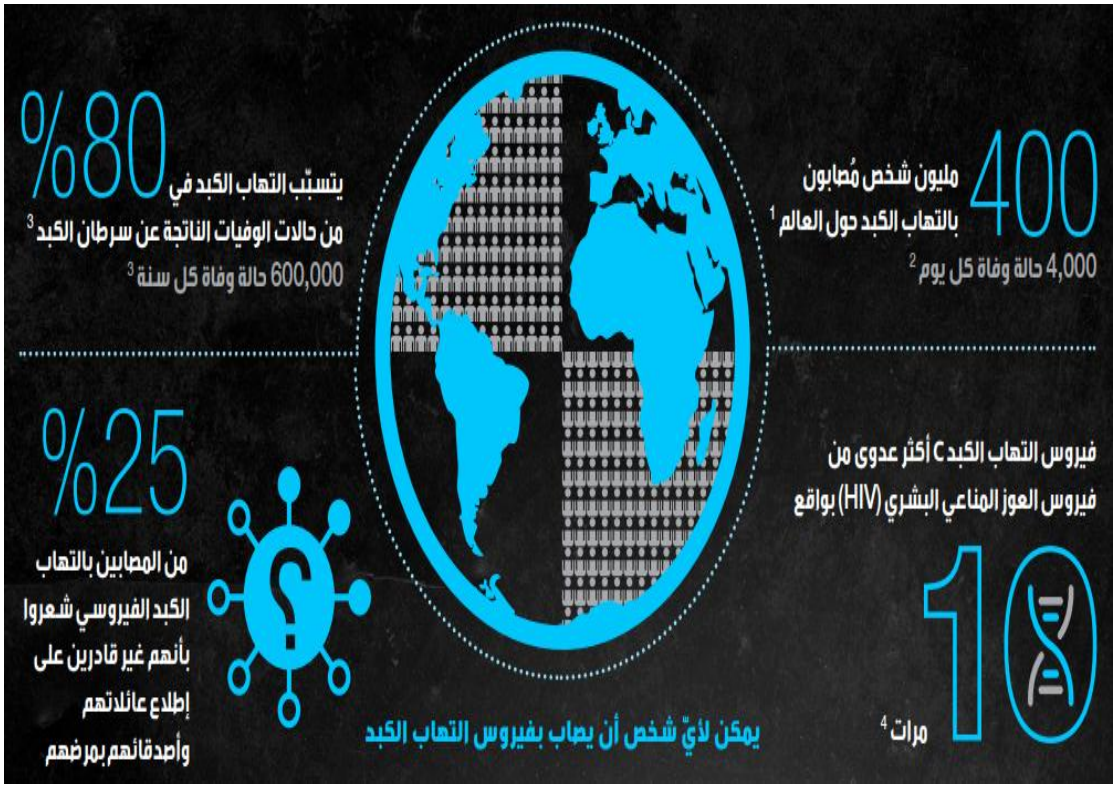
بالإضافة إلى ذلك فيروس التهاب الكبد يعتبر اكثر عدوى من فيروس نقص المناعة المكتسبة الذي يسبب مرض الايدز فهناك ما يزيد على 240 مليون شخص في العالم يعانون من حالات عدوى الكبد المرضية المزمنة طويلة الأجل، ويموت سنويا حوالي 600 ألف شخص من جراء عواقب المرض الحادة والمزمنة.

ومن المهم أن تعلم أن:

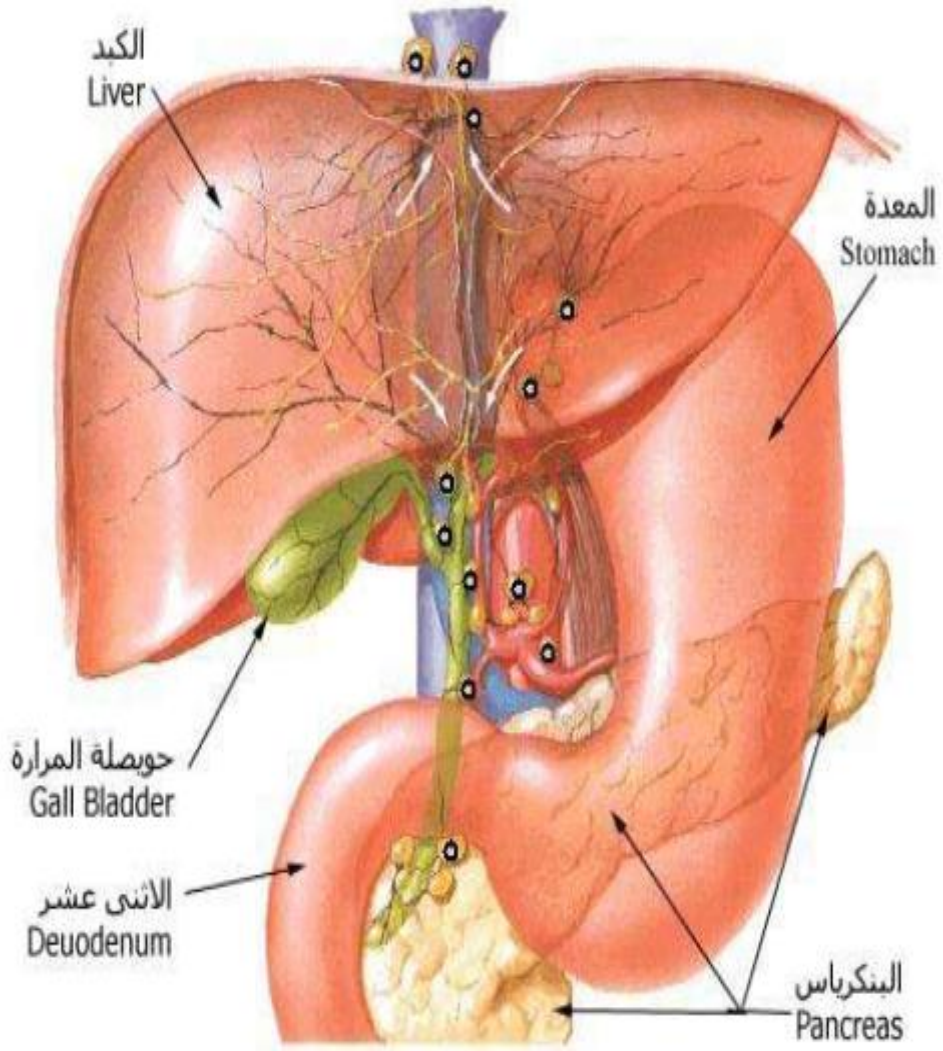
• حوالى ٪75إلى ٪85من المصابين بالفيروس "C" تتحول إصابتهم إلى التهاب مزمن مدى الحياة و باقي الحالات (15 إلى ٪25) تتخلَّص من الفيروس تلقائيا بغير علاج خلال 6 أشهر.

• حوالى(20 إلى ٪30)من المصابين بالفيروس "C" المزمن يصابون بتليف في الكبد خلال عشرات السنين.

• حوالى(1إلى ٪5) من حالات تليف الكبد سنوياً تتطور إلى أورام كبدية. وترتفع نسبة الأشخاص الذين تتحول إصابتهم إلى التهاب مزمن إذا كانت الإصابة مزدوجة من فيروس الإيدز وفيروس "C"، ويذكر أن الفيروس "C" يكون عادة أشد خطورة لدى الأشخاص المصابين بالفيروس "B" في نفس الوقت.



ويعتبر التهاب الكبد الفيروسي بأنواعه المعروفة من اخطر الأمراض المعدية في العالم والممرضين هم من أكثر الأفراد في الفريق الصحي عرضة للإصابة بهذا المرض المعدي و أيضا هم الأفراد القادرون على التحكم والوقاية من انتشار هذا الوباء عن طريق استخدام كل وسائل التحكم في انتشار العدوى وحماية المرضى غير المصابين به من التعرض للإصابة ايضأ .



معلومات عن الكبد

ما هو الكبــد؟

الكبد هو أكبر عضو في جسم الإنسان، ويوجد في أعلى تجويف البطن في الجانب الأيمن تحت الضــلوع، وللكبد العديد من الوظائف الجوهرية، فكل شـيء تأكلــه أو تشربه أو حتى تستنشقه لا بد أن يمر عبر الكبد.

ما هي وظائف الكبد؟

يقوم الكبد يومياً بالوظائف التالية:

- تحويل الغذاء إلى طاقة.
- تنقية الدم من السموم والأدوية.
- تخزين الفيتامينات والمعادن كالحديد.
- تكوين العصارة المرارية (سائل يساعد على هضم الدهون).
- الحفاظ على توازن مستويات السكر والدهون والهرمونات بالدم.
- تصنيع عوامل تجلط الدم عن طريق وقف النزيف من الجروح .

تعريف التهاب الكبد الفيروسي:-

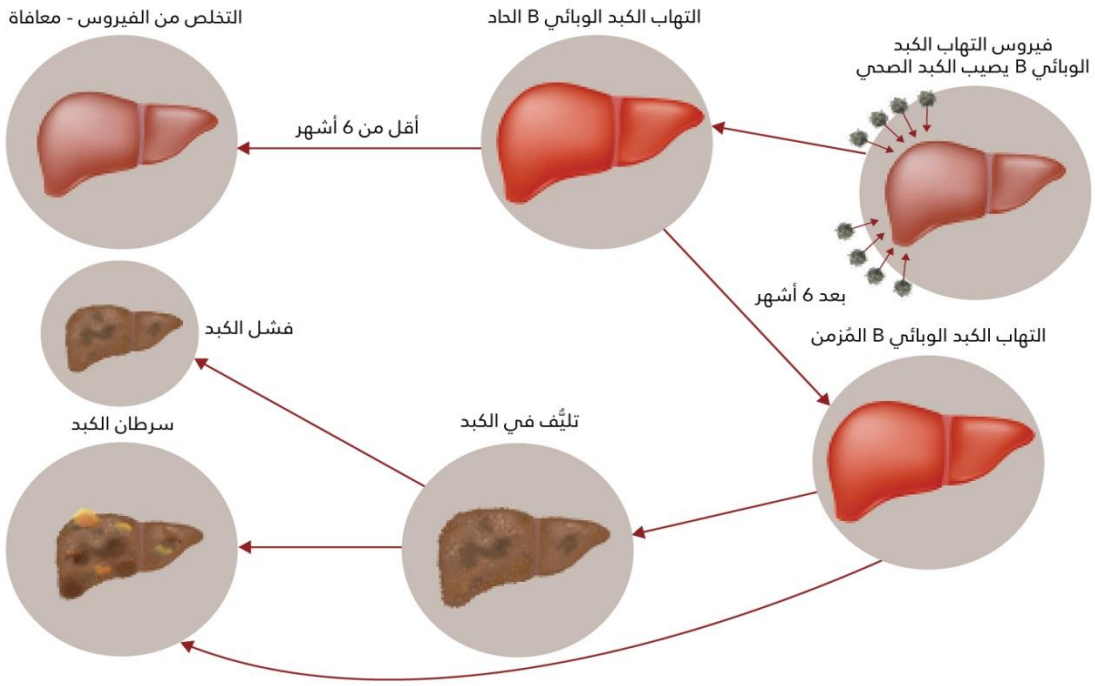
إن التهاب الكبد الفيروسي هو تبدلات التهابية تصيب الكبد ناتجة عن واحد من خمسة فيروسات لالتهاب الكبد يشار إليها بـ A، وB، وC، وD، وE . ورغم أن جميع هذه

الفيروسات تسبب مرضا في الكبد فإنها تتفاوت تفاوتا ملحوظا في السمات الوبائية، وفي التاريخ الطبيعي، وفي الوقاية، وفي التشخيص، وفي المعالجة.

انواع التهاب الكبد الفيروسي الذي ينتقل عن طريق الدم ومشتقاتة

الالتهاب الكبدي الفيروسي "B" و "C"

هذان النوعان هما الأخطر بين الإصابات الكبدية الفيروسية، بعض المصابين يمكن لأجسامهم التخلص من الفيروس B الفيروس Cبغير علاج غير أن الإصابة بهما يمكن أيضاً أن تتحول إلى إصابة مزمن.



أعراض التهاب الكبد الفيروسي نمط B ونمط C :-

لا يبدو على الكثير من الناس أي أعراض لسنوات عديدة بعد العدوى. ومع ذلك قد يشعر بعض الناس بواحد أو أكثر من الأعراض التالية:

- **آلام في البطن.**
- **غثيان أو قيئ.**
- **الشعور بالتعب (الإجهاد،) والاكتئاب وحدة الطبع.**
- **فقدان الشهية (عدم الشعور بالجوع) وفقدان الوزن.**
- **أوجاع وآلام.**

- ّ حمى.
- يرقان (اصفرار الجلد، اصفرار العينين.

هناك مرحلتان (حالتان) من التهاب الكبد الفيروسي نمط B ونمط C

أ : الالتهاب الحاد

ب : الالتهاب المزمن

أ:- التهاب الكبد الوبائي الحاد؟ يحدث التهاب الكبد الوبائي الحاد عندما يصاب الناس بفيروس التهاب الكبد الوبائي للمرة الأولى وتظل العدوى لفترة أقل من ستة أشهر .ومن الممكن أن يتخلص بعض الناس من فيروس التهاب الكبد الوبائي ما بعد الالتهاب الحاد وأن يتعافوا منه بالكامل. وهم عندئذ يكتسبون مناعة ضد (يكونون محميين من) فيروس التهاب الكبد الوبائي ، وهذا يعني أنهم لن يصابوا بالتهاب الكبد الوبائي مرة أخرى.

ب:- مرض التهاب الكبد الوبائي المزمن بعد ستة أشهر من الإصابة بالالتهاب الحاد، لا يتمكن بعض الناس من التخلص من فيروس التهاب الكبد الوبائي Bوتظل إصابتهم بالتهاب الكبد الوبائي B مدى الحياة. وهذا ما يطلق عليه التهاب الكبد الوبائي B المزمن. وبدون الرصد المنتظم والتحكم المناسب، قد يتطور لدى بعض الناس، بعد سنوات عديدة من العدوى، أمراض خطيرة في الكبد، تشمل تليف في الكبد (تكوين نسيج ندبي في الكبد،) أو فشل الكبد(يتوقف الكبد عن العمل،) أو سرطان الكبد.

المجاميع المعرضة للخطورة بالإصابة بالتهاب الكبد الفيروسي لنوعي B , C هي

- **الملامسين المباشرين للمرضى وحاملي الفيروس .**
- **الملاكات الطبية والصحية في المؤسسات الصحية .**
- **المرضى والعاملين في وحدات الكلية الصناعية .**
- **العاملين في المختبرات ومصارف الدم وغيرها .**
- **المصابين بأمراض الدم الوراثية (مثل الثلاسيميا والهيموفيليا) وسرطان الدم وعجز الكلى .**
- **العاملين في الحلاقة والقبالة والختانين .**
- **طلاب كليات الطب ، طب الاسنان ، الصيدلة ، التمريض والمعاهد والمدارس ذات العلاقة والمؤسسات الخاصة بالمتخلفين عقلياً .**
- **مرضى السكري .**

- نزلاء السجون والعسكريين .

طرق انتقال مرض التهاب الكبد نمط B و C :-

كيف يصاب الناس بالتهاب الكبد الوبائي؟ يمكن أن يصاب الناس بالتهاب الكبد الفيروسي نمط B ونمط C عن طريق:

- **انتقال العدوى من الأم للوليد –يمكن أن تَنقِل المرأة الحامل المصابة بالتهاب الكبد الوبائي Bفيروس المرض إلى وليدها عند الولادة. في كثير من البلدان تعتبر هذه الطريقة هي الأكثر شيوعا للإصابة بالتهاب الكبد الوبائيB.**
- **انتقال العدوى عن طريق الدم –**

هناك العديد من الطرق التي يصاب بها الناس بعدوى التهاب الكبد الوبائي Bعن طريق الدم، حتى إذا كان الدم غير ظاهر، مثلً

– المعدات الطبية غير المعقمة ـ في بعض البلدان، قد تُنظف المعدات الطبية، التي تشمل الإبر والحقن، ولكنها لا تُعقَّم (التعقيم هو عملية يتم بها قتل الفيروسات) بعد الاستعمال. لذلك، من الممكن أن تنتقل الفيروسات إلى شخص آخر عند استعمال المعدات مرة أخرى.

ـ مشاركة أدوات العناية الشخصية مع الآخرين مثل فرش الأسنان وموسى الحلاقة وأدوات تقليم الأظافر.

– ثقب الجسم أو الأذن والوشم (وتشمل وشم حاجب العين والمكياج) إذا كانت المعدات غير معقَّمة.

– الممارسات الثقافية ووسائل العلاج التقليدية ـ بعض الممارسات الثقافية ووسائل العلاج التقليدية التي تتضمن قطع الجلد أو ثقبه قد تعرض الناس لخطر الإصابة بالتهاب الكبد الوبائي إذا كانت المعدات أو الأدوات المستعملة غير معقَّمة تعقيما سليما. مثل، تشريط الجلد، وتشويه الأعضاء التناسلية للإناث والوشم والوخز بالإبر والحجامة (استخراج الدم).

– من طفل إلى آخر والمخالطة بين أفراد العائلة: قد ينقل المصابون بالتهاب الكبد الوبائي Bالعدوى للآخرين عن طريق ملامسة القروح والجروح والإصابات إلى جانب مشاركة الأدوات مثل فرش الأسنان وموسى الحلاقة.

– نقل الدم أو منتجات الدم ـ قد يصاب الناس في بعض البلدان بالتهاب الكبد الوبائي من جراء نقل الدم أو منتجات الدم إذا لم يتم فحصها للكشف عن فيروس التهاب الكبد الوبائي B. فيجب

فحص جميع عينات الدم ومنتجات الدم للتأكد من أنها آمنة للاستعمال.

- مشاركة معدات حقن المخدرات مع الآخرين .

- يمكن أن ينتقل التهاب الكبد الوبائي Bعن طريق الاتصال الجنسي بدون حماية (ممارسة الجنس

بدون استعمال واقي ذكري.)

لا يمكنك أن تُصاب بالتهاب الكبد الوبائي نمط بي ونمط سي بالطرق التالية:

- **مشاركة الطعام والشراب مع الآخرين**
- **تبادل الأطباق والأكواب**
- **المصافحة**
- **المعانقة**
- **التقبيل**
- **العطس**
- **استعمال المراحيض أو حمامات السباحة العامة**
- **الرضاعة الطبيعية**
- **لسع البعوض**

التشخيص نمط B ونمط C:-

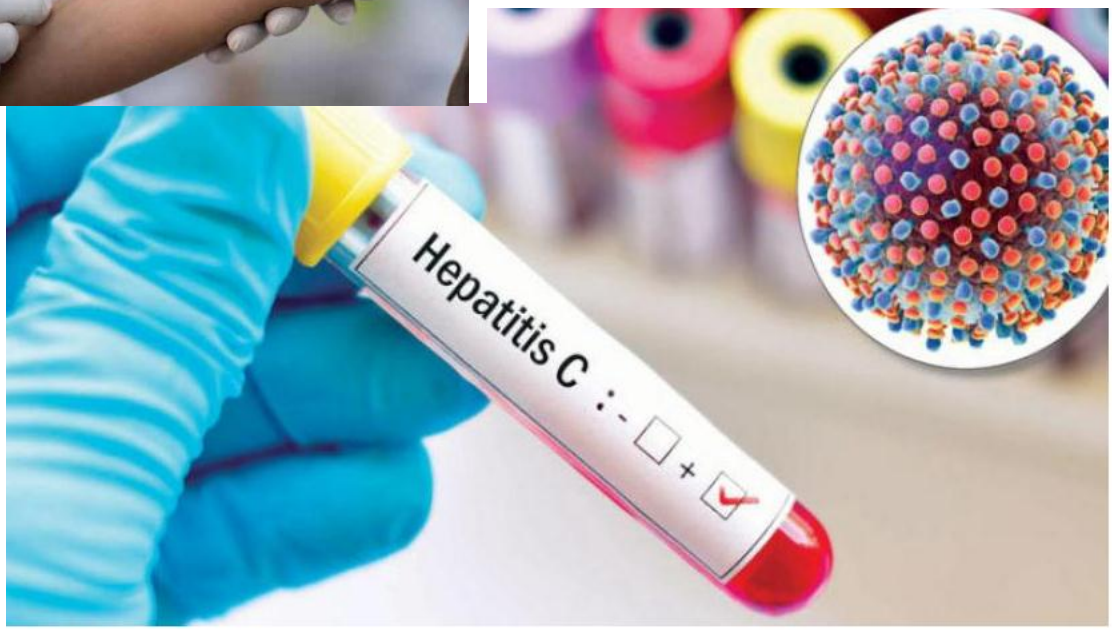
التي تتضمن تحليل كامل لوظائف الكبد(liver Function Test)وخاصة

الانزيمات التي تشمل ما يلي:-

1:-مستوى الصفراء(Bilirubin Direct and Indirect)

2:-مستوى البروتينات والالبومين

3:- مستوى انزيمات الكبد مثل ALT ,GGT



ما الذي تتضمنه الفحوصات الطبية المنتظمة؟

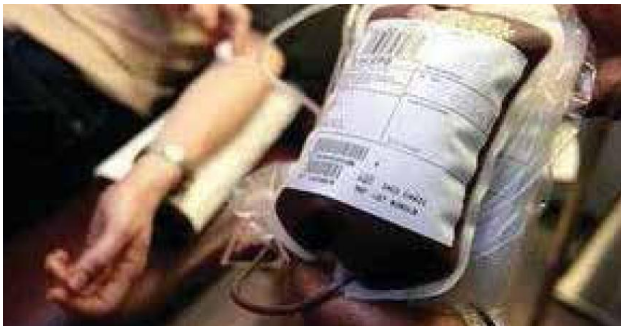
تبحث فحوصات التهاب الكبد الفيروسي إمّا عن البروتينات (الأجسام المضادة) التي يصنعها الجسم لمكافحة العدوى، أو تبحث عن المستضداتantigen ، أو المادة الوراثية (DNA) أو (RNA)للفيروسات التي تسبب التهاب الكبد. فحوصات التهاب الكبد الفيروسي تشمل:

- **مستضد التهاب الكبد الفيروسي نوع s السطحي.(HBsAg)**
- **الأجسام المضادة لالتهاب الكبد الفيروسي نوع B .(HBsAb)**
- **الأجسام المضادة لمستضد c لالتهاب الكبد الفيروسي نوع B (HBc-IgM/ HBc IgG).**
- **مستضد e سام لالتهاب الكبد الفيروسي نوع B .(HBe Ag)**
- **الأجسام المضادة لمستضد e لالتهاب الكبد الفيروسي نوع B .(HBe Ab)**
- **الأجسام المضادة لالتهاب الكبد الفيروسي نوع C .(HCV Ab)**

- **الكشف عن كمية الحمض النووي ريبوزي منقوص الأكسجين التهاب الكبد الفيروسي نوع ب، أو الحمض النووي الريبوزي لالتهاب الكبد الفيروسي نوع ج (HCV RNA/HBV DNA) باستخدام تفاعل البوليميراز المتسلسل.**

لتشخيص إلتهاب الكبد الفيروسي B / سنجد HBsAg إيجابي، و هذا يعني أن المريض مصاب بفيروس الكبد B، وإيجابية هذا التحليل تظهر بعد العدوى ب 6أسابيع.

ما نوع هذا المرض : حاد أم مزمن أم حامل للفيروس ؟



لكي نحدد النوع نقوم بعمل التحاليل التالية:

- anti HBc IgM

- anti HBc IgG

إذا كان HBc IgM إيجابي (إذن فهو حاد) و وجوده (إيجابي) يعبر عن الإصابة الحادة

إذا كان HBc IgG إيجابي (إذن يدل على إصابة مزمنة أو حامل للفيروس) وهو يظهر متاخراً في الدم ولا يختفي أبداً

لكي نفرق بين : المزمن و الحامل، نقوم بعمل التحاليل التالية:

ALT، AST ، HBe Ag، PCR-Polymerase Enzyme

-المزمن ؛ ستكون نتيجة تحاليله كالتالي:

ALTو AST مرتفعة

HBe Ag1q إيجابي

PCR-Polymerase Enzyme إيجابي و مرتفع بإستمرار

-الحامل ؛ تكون على العكس:

ALTو AST ضمن الطبيعي

HBe Agسلبي

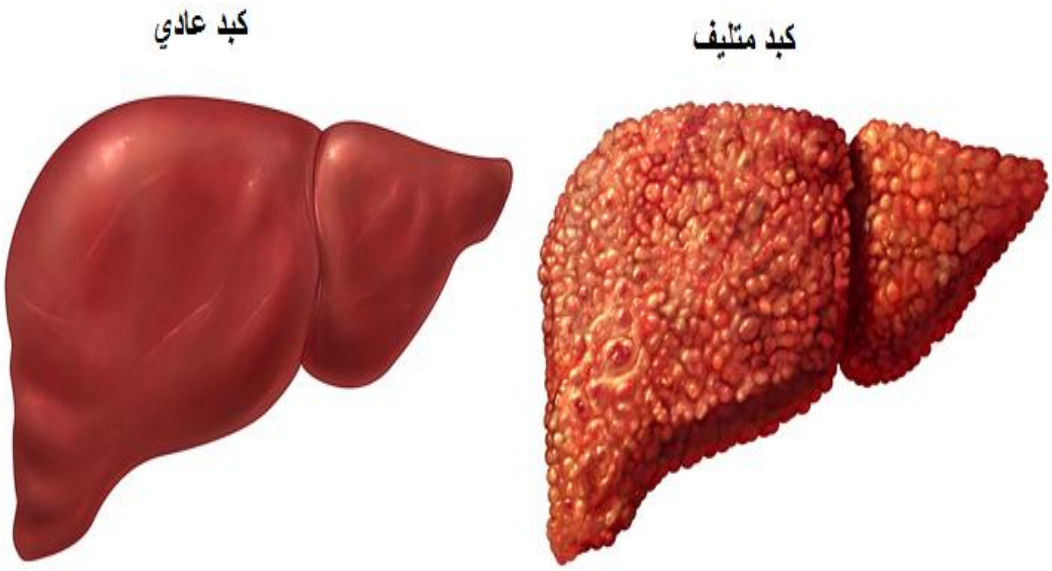
PCR-Polymerase Enzyme سلبي

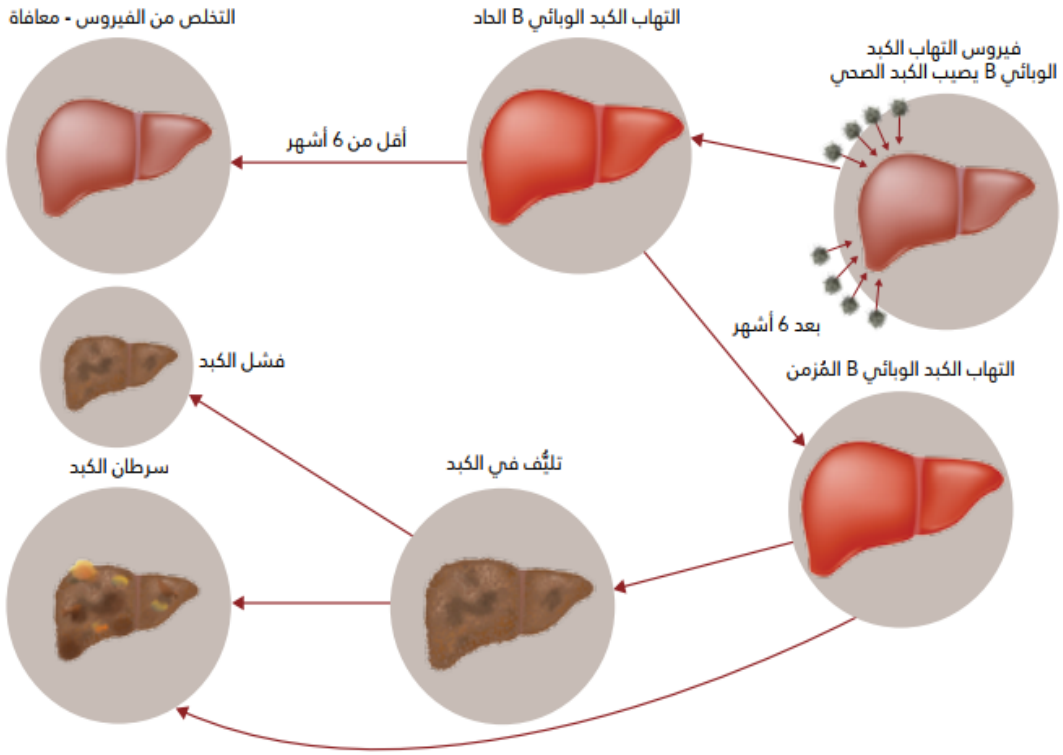
ملاحظة:- يتم أجراء فحص التهاب الكبد الفيروسي لمرضى الثلاسيميا كل ثلاثة أشهر.

مضاعفات التهاب الكبد نمط B ونمط C

يمكن لعدوى التهاب الكبد C التي تستمر على مدار سنوات عديدة أن تسبِّب مضاعفات كبيرة، مثل:

- **تشمع الكبد** بعد مرور عقود من الإصابة بالتهاب الكبد C، قد يحدُث تشمع الكبد. تندّب الكبد يجعل من الصعب عليها أداء وظيفتها.
- **سرطان الكبد** قد يُصاب عدد ضئيل من حاملي عدوى التهاب الكبد C بسرطان الكبد.
- **فشل الكبد** قد يتسبَّب تشمع الكبد المتقدِّم في توقُّف الكبد عن أداء وظيفتها.





العلاج من التهاب الكبد الفيروسي نمط بي وسي الحاد التي تشمل ما يلي:-

- **الراحة البدنية التامة**
- **التغذية الجيدة وتجنب الاغذية الدهنية**
- **تجنب الكحول**
- **تناول السكريات والبروتينات والفيتامينات**
- **تقليل الأدوية التي تتحلل في الكبد**
- **المتابعة الدورية مع الطبيب المعالج**

العلاج الدوائي للالتهاب الكبد الفيروسي

يتم علاج الإصابات المزمنة باستخدام عقار الـ "إنترفيرون" عن طريق الحقن أو بمضادات الفيروسات الأخرى التي تستخدم عن طريق الفم، ويمكن للعلاج أن يخفف من حدة الإصابة وقد يؤدي إلى نسبة شفاء تصل إلى ٪25وإلى اختفاء الأعراض في نسبة تصل إلى ٪50من المصابين. كما يجب على كل من يبدأ العلاج عن طريق الفم أن يستمر في تناوله مدى الحياة حتى لا يؤدي وقفه إلى انتكاسة قد تهدد حياة المصاب، ولا ينصح بإعطاء هذا النوع من العلاج إلا بعد استشارة الطبيب حتى لا تحدث مقاومة من الفيروس للعقار المستخدم وتقل

فـاعليته ومن المهم متابعة المصـابين بالفحص بالمـوجـات فـوق الصوتية للاكتشـاف المبكر للمضاعفات.

عقار ال" ريبافيرين"

هذا العلاج أثبت فاعليّته في علاج" الفيروس سي " عندما يستخدم في نفس الوقت مع مستحضر ال" إنترفيرون" ، ويُذكر أنه لا يعمل بكفاءة إذا استُخدِم وحده، ويتمُّ إنتاج ال "ريبافيرين " في صورة أقراص أوكبسولات، والجرعة تكون حسب وزن المصاب مرتين يوميا.

الوقاية من التهاب الكبد الفيروسي

هل يوجد تطعيم للوقاية من الإصابة بالفيروس نمط بي ونمط "سي"؟

لا يمكن الوقاية من فيروس "سي" على الإطلاق، وذلك لأن الجزيئات الموجودة على الفيروس تتغير باستمرار، لذا لا يمكن عمل مصل مضاد له بشكل واضح"

أما فيروس "بي" يمكن الوقاية منه، لأن الجزيئات الموجودة على الفيروس لا تتغير، وبالتالي يوجد تطعيم واقي منه، ويجب المواظبة عليه للوقاية منه.

اللقاح المستخدم عبارة عن الجين السطحي للفيروس المسبب للمرض والذي تم صناعته بطريقة الهندسة الوراثية (التقنية الجينية) من خلال زرع الفيروس في خلية خميرة وبعد نمو الفيروس وتكاثره يتم حصاد الجين السطحي وتنقيتة لذا فلا توجد اي احتمالية للإصابة بالمرض بسبب اللقاح لكونه لا يحتوي على الفيروس المسبب للمرض كما هو الاعتقاد الخاطئ والشائع لدى بعض الملاكات الطبية والصحية .

الاجراءات الوقائية من التهاب الكبد الفيروسي نمط B ونمط C؟

1- يجب اعطاء لقاح التهاب الكبد الفيروسي نمط B للأطفال حديثي الولادة وللكادر الطبي في المؤسسات الصحية.

2- نشر التوعية والإرشاد في المجتمع حول طبيعة المرض وطرق انتقاله والوقاية منه.

3- التاكيد على عدم التبرع بالدم او استلام الدم الا بعد التأكد من سلامته من فيروسات التهاب الكبد

4- في حالة الاصابة بالنوع B يجب إعطاء الملامسين المباشرين لقاح التهاب الكبد نوع B وبثلاث جرع للصغار(صفر،2 و6 اشهر) وللكبار (1 ،2، 6) اشهر.

5- يجب إعطاء مصل التهاب الكبد نوع(HBIG) B للحالات التالية بهدف اعطاء مناعة اولية وسريعة قبل اعطاء لقاح التهاب الكبد الفيروسي ويفضل اعطاؤهما معاً.

أ- للزوج او الزوجة إذا أصيب أحدهما بالتهاب الكبد الفيروسي الحاد نمط بي.

ب- للطفل المولود حديثا لام مصابة بالتهاب الكبد الفيروسي نوع B او حاملة له.

ت- عند تعرض المعالجين للجرح او الوخز بأدوات ملوثة بدم اشخاص مصابين او حاملين للمرض.

6- التأكيد على المصاب بالمراجعة الشهرية لمراكز الفحص والعيادات الاستشارية لإمراض الكبد لغرض تقييم ومتابعة حالته مختبريا" وسريريا"،ويعاد فحص HBsAg شهريا لمدة 3 اشهر ثم كل ثلاثة اشهر لمدة 9 أشهر، واذا استمرت النتيجة موجبة يعتبر المريض حامل للمرض ويتم عمل الفحوصات الاخرى حسب ما يرتئيه الطبيب المعالج .ويتم تقييم حالته كل سنة مرة واحدة في المراكز العلاجية.

7. تجنب الحقن غير الضرورية وغير المأمونة .

8. الابتعاد عن الممارسات الجنسية غير الآمنة .

9. تجنب تعاطي المخدرات غير المشروعة والتشارك في معدات الحقن.

10. تجنب استخدام ادوات ملوثة في رسم الوشم على الجسم و وخزه بالإبر.

11. جمع التالف من الادوات الحادة والتخلص منها بالطرق الصحية السليمة.

12. يعتبر مرض التهاب الكبد الفيروسي نوع B من اخطر الامراض الفتاكة التي قد تصيب الطفل عند الولادة او بعد الولادة وان نسبة المضاعفات الخطيرة كالالتهاب المزمن للكبد او تليف وسرطان الكبد تزداد بشكل كبير كلما كانت اصابة الطفل في الايام والاشهر الاولى من عمره وبالأخص في حالة كون الام الحامل مصابة بالمرض او الحاملة لفيروس التهاب الكبد الفيروسي B ، واخطر مرحلة هي اصابة الوليد اثناء عملية الولادة .

الاحتياطات القياسية لضبط العدوى

1. نظافة الايدي

***يتم غسل اليدين بصابون عادي في حالات الغسل العادي.**

***ان فرك الايدي بالمطهر الكحولي هو المعيار الذهبي للعناية بنظافة الايدي .**

***يتم غسل اليدين بعد لمس الدم أو الافرازات أو الاتساخ الظاهر للعيان .**

***غسل اليدين الجراحي الذي يسبق العمليات الجراحية.**

2. وسائل الوقاية الشخصية

* وسائل استخدام الوقاية تقي مقدم الخدمة الصحية (الكادر الطبي والصحي) من انتقال العدوى اليه بسبب تلوث الدم أو سوائل الجسم .

*تشمل وسائل الوقاية الشخصية على القفازات بأنواعها الثلاث (لاتكس ،جراحية ، سميكة) والكمامات وواقيات العين والعباءات والتي تستخدم أثناء تنفيذ بعض الاجراءات الطبية التي تؤدي الى تناثر رذاذ الدم وسوائل الجسم المختلفة .

* يجب أتباع الطرق السليمة عند ارتداء هذه المعدات وعند خلعها .

3. السلامة والصحة المهنية

*إعطاء اللقاحات اللازمة.

* اتخاذ الاجراءات الفورية عند التعرض للوخز وإصابات العمل .

4. الاساليب المانعة للتلوث

هي مجموعة من الممارسات والاساليب التي يجب ان تتبع قبل وخلال الاجراءات الطبية السريرية الجراحية وتشمل على ما يلي :-

*استخدام الملابس الخاصة بالجراحة والتداخلات الطبية حسب نوع التداخل

* غسل اليد الجراحي وارتداء القفازات المعقمة.

*المحافظة على تعقيم العناصر المستخدمة (السوائل والاجهزة وعدم أعادة استخدامها مرة أخرى).

*أتباع الاساليب المانعة للتلوث أثناء الاجراءات التي تخترق الجلد مثل الحقن وسحب الدم .

5. تنظيف وتطهير وتعقيم الادوات والمعدات الطبية

*يجب التأكد من أن الادوات التي يعاد استعمالها مع مريض أخر قد تم تنظيفها وتطهيرها جيدا" .

6. النظافة البيئية

*يجب التأكد من أن المستشفى ووحدة الديلزة تتمتع بخدمات واجراءات نظامية كافية فيما يخص تنظيف وتطهير كل الاسطح والاماكن .

7. الحقن الامن

*حماية الكادر الطبي من خطر الاصابة بالأدوات الحادة .

*عدم أعادة غطاء الابر بعد الحقن والتخلص منها مباشرة بالصندوق الامن .

*التخلص من الادوات الحادة فور استخدامها في أوعية مضادة للثقب .

***التخلص من أوعية الادوات الحادة عند امتلائها الى ثلاثة ارباعها.**

*** اتباع اجراءات ما بعد التعرض للوخز.**

8. ادارة النفايات الطبية

***التخلص من النفايات الطبية بطريقة علمية تحد من انتشار العدوى داخل الوحدة والمستشفى وخارجها .**

إجراءات التعامل مع مرضى العمليات الباردة المصابين بالتهاب الكبد الفيروسي نمط Bاو C او كليهما:

1. **يتم اجراء العمليات للموجبين لأي من النوعين بأدوات جراحية خاصة تهيء لهذا الغرض .**
2. **يتم اتخاذ اعلى درجات العقامة لأسرة العمليات والافرشة والادوات المستخدمة في العمليات.**
3. **يقوم كافة الجراحين والكوادر المساعدة بارتداء البسة العمليات الكاملة ومنها زوجين من الكفوف المطاطية والكمامة والنظارات الخاصة بالعمليات.**
4. **يفضل ان تخصص أسرة خاصة لأجراء مثل هذه العمليات في المستشفيات الكبيرة التي تتوفر فيها الامكانيات لمثل هذه الاجراءات . أما في المستشفيات الصغيرة فنقترح اجراء عمليات الحالات الموجبة كأخر عمليات في ذلك اليوم (تكون عملية الموجبين لأي من النوعين B او C او كليهما هي أخر عملية في القائمة).**
5. **تخضع الاجهزة والادوات الطبية المستخدمة للحالات الموجبة لأشد عمليات التنظيف والتطهير والتعقيم بعد استخدامها.**

6. يجب ان يكون جميع العاملين في صالات العمليات من اطباء وملاكات صحية وخدمية قد أخذوا ثلاث جرع من لقاح التهاب الكبد الفيروسي نوع B قبل العمل في صالات العمليات وانهم قد اكتسبوا المناعة ضد المرض وذلك من خلال فحص مستوى المناعة (Anti HBs Ab).

ما هي الاجراءات التمريضية في حالة اصابة الكادر الطبي بالوخز بالابراو المعداة الحادة الملوثة بدم المريض ؟

- يغسل الجرح بالماء والصابون.
- تبليغ المشرف المسؤول وكتابة تقرير الاصابة في مكان العمل.
- اجراء الفحوصات التالية نقص المناعة الوراثي والتهاب الكبد الفيروسي نوع B ونوع C للشخص المصاب بالوخز من الكادر الطبي والشخص مصدر الدم الملوث.
- يعطى للشخص المصاب بالوخز من الكادر الطبي لقاح التهاب الكبد الفيروسي نوع B ثلاثة جرع واضافة الى مصل التهاب الكبد الفيروسي نوع B ،أما اذا كان الشخص المصاب بالوخز لدية تلقيح ضد التهاب الكبد الفيروسي فيعطى للشخص المصاب بالوخز جرعة منشطة من لقاح التهاب الكبد الفيروسيB.

دور الممرض في رعاية المرضى المصابين بالتهاب الكبد نمط B ونمط C

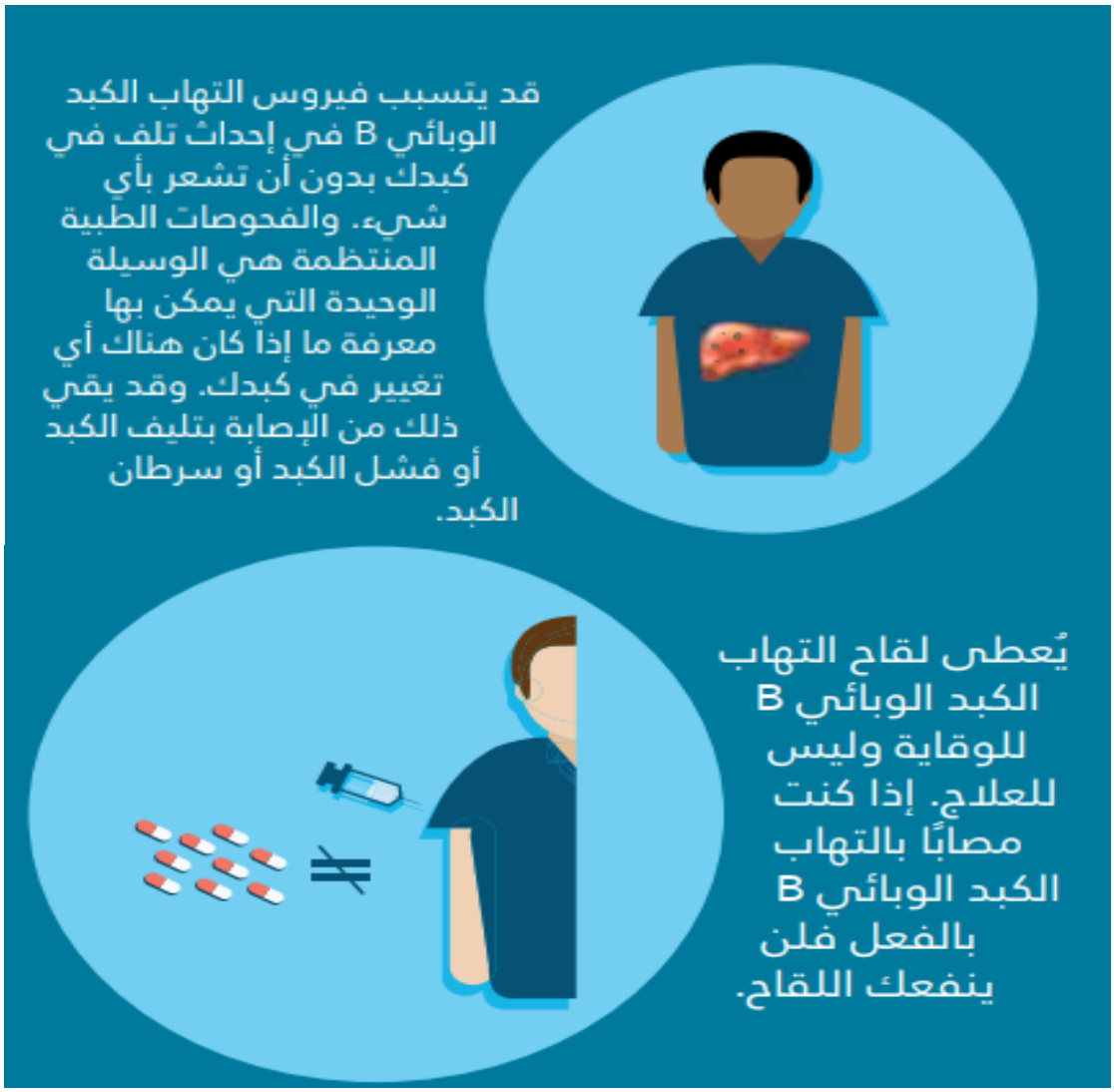
يبرز دور ممرض أمراض الكبد في رعاية مرضى التهاب الكبد كتخصص متميز في تمريض أمراض الكبد ويتم دعمه بواسطة الإستراتيجية الوطنية الأولى لمرض التهاب الكبدB -2010

2013. يتطلب التهاب الكبد B المزمن إدارة سريرية مدى الحياة ؛ لذلك ، سيحتاج المرضى إلى الانخراط بانتظام مع نظام الرعاية الصحية.

1. يلعب ممرضو أمراض الكبد دورًا مهمًا في رعاية المرضى الذين يعانون من مرض التهاب الكبد المزمن ، حيث أنهم يدعمون المريض أثناء تنفيذ خطة الإدارة، بما في ذلك المراقبة مع او بدون العلاج.
2. يلعب ممرضو أمراض الكبد أيضًا دورًا مهمًا في الدفاع والتفاوض بالنيابة عن المرضى الذين يعانون من التهاب الكبد المزمن لتحسين الوصول إلى الرعاية وتلبية احتياجاتهم الصحية عبر مجموعة من إجراءات الرعاية الصحية.
3. يعمل ممرضو امراض الكبد إلى دعم الوقاية من عدوى التهاب الكبد B.
4. يلعب ممرضو امراض الكبد دورًا مهمًا في تثقيف الأصدقاء / الاعضاء المقربين من المرضى الذين يعانون من التهاب الكبد المزمن ليتم اختبارهم وتطعيمهم ، لانهم عرضة للإصابة. بالإضافة إلى ذلك، يلعب ممرضو امراض الكبد دورًا في تعزيز التطعيم للأشخاص المعرضين للخطر، بما في ذلك الأشخاص الذين يتعاطون المخدرات بالحقن والرجال الذين يمارسون الجنس مع الرجال (جمعية أمراض الكبد الأسترالية، 2012).

ملاحظات عن التهاب الكبد الفيروسي نمط B و C


بإمكان دواء التهاب الكبد الوبائي B أن يقلل من كمية فيروس التهاب الكبد الوبائي B في جسمك. يعمل الدواء في جسمك بالرغم من عدم شعورك بأي شيء. بمجرد الابتداء في تناول الدواء، يلزم معظم الناس الاستمرار في تناوله طول العمر.
لا يحتاج جميع الأشخاص المصابين بالتهاب الكبد الوبائي B المزمن تعاطي الأدوية. تتوقف الحاجة إلى الدواء على نتائج الفحص الطبي المنتظم التي تخضع له.


قد يتسبب فيروس التهاب الكبد الوبائي B في إحداث تلف في كبدك بدون أن تشعر بأي شيء. والفحوصات الطبية المنتظمة هي الوسيلة الوحيدة التي يمكن بها معرفة ما إذا كان هناك أي تغيير في كبدك. وقد يقي ذلك من الإصابة بتليف الكبد أو فشل الكبد أو سرطان الكبد.
يُعطى لقاح التهاب الكبد الوبائي B للوقاية وليس للعلاج. إذا كنت مصابًا بالتهاب الكبد الوبائي B بالفعل فلن ينفعك اللقاح.


لا ينبغي على
الناس المصابين
بالتهاب الكبد
الوبائي B
المزمن شرب
الكحوليات أو
التدخين.
لا يزال بإمكان الناس
المصابين بالتهاب الكبد
الوبائي B نقل
فيروس التهاب
الكبد الوبائي
B إلى الآخرين.
يجب على أفراد
العائلة الخضوع
للفحص وتلقي
التطعيم (إذا كانوا
غير محصنين).

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الخلاصة

الخلفية: يعد التهاب الكبد الفيروسي مشكلة صحية عالمية تؤثر على الملايين من الناس سنوياً مسبب لهم العجز والموت. الملايين من الناس يعيشون مع التهاب الكبد الفيروسي وملاييين اكثر يعيشون في خطر الاصابة. تقدر الوفيات حوالي 1.3 مليون سنوياً نتيجة التهاب الكبد الفيروسي الحاد مسبباً سرطان و تليف الكبد. لأجل ذلك معارف الممرضيين/الممرضات تجاه التهاب الكبد الفيروسي نوع B و C تؤثر على طبيعة و نوعية العناية المقدمة للمريض.

الاهداف: تهدف هذه الدراسة إلى تقييم معارف الممرضيين/الممرضات تجاه التهاب الكبد الفيروسي نوع B و C، تقييم تأثير معلومات الكتيب على معارف الممرضيين/الممرضات تجاه التهاب الكبد الفيروسي نوع B و C، ولمعرفة هل هناك علاقة بين نتائج الاختبار البعدي و المتغيرات الديموغرافية المختارة.

الطرق والمواضيع: أجرِت الدراسة على مجموعة واحدة اختبار قبلي وبعدي شبه تجريبي باستخدام طريقة تقيمية هادفة. الدراسه تمت في الفترة من 10 اكتوبر 2019 الى 4 فبراير 2020 ،الدراسة شملت 70 ممرض/ممرضة يعملون في مستشفيات الاطفال في مدينة الموصل. صلاحية الدراسة عرضت ودققت من قِبل خبراء علميين.

النتائج: تم اجراء الامتحان القبلي وتم توزيع كتيب المعلومات وبعد اسبوعين تم اجراء الاختبار البعدي. وتم تحليل البيانات باستخدام عمليات احصائية مختلفة. وكانت نتائج المتوسط الحسابي للاختبار القبلي(11.1571) ونتيجة المتوسط الحسابي للاختبار البعدي (20.2857) هو أعلى بوضوح من الاختبار القبليز

الأستنتاجات: هذه النتيجة تدل على ان معلومات الكتيب أثرت على زيادة معارف الممرضيين. ومتوسط التحسين في المعارف كان(9.1286) بين الاختبارين القبلي والبعدي. أي ان هناك دلالة ذات احصائية عالية بين الاختبارين.

التوصيات: وفقًا للنتيجة، توصي الدراسة بان نموذج التعليم الذاتي له تاثير عالٍ في تحسين معارف الممرضيين/الممرضات تجاه التهاب الكبد الفيروسي نوع B و C بمستشفيات الاطفال في مدينة الموصل.

الكلمات المفتاحية: التهاب الكبد الفيروسي نوع B و C، تاثير معلومات الكتيب، معارف الممرضيين.

أقرار لجنة المناقشة

نقر بأننا أعضاء لجنة المناقشة اطلعنا على هذه الرسالة الموسومة **(تأثير كتيب المعلومات على معارف الممرضين تجاه التهاب الكبد الرشحي نمط (ب و ث) لدى الاطفال في مستشفيات الاطفال بمدينة الموصل)** وقد ناقشنا الطالب (عمر خيرالدين خالد السلطان) في محتوياتها وفيما له علاقة بها في يوم (الاربعاء) الموافق 11\11\2020 وقد تم قبول الرسالة ونوصي بانه جدير بنيل شهادة الماجستير/ علوم في التمريض/ تمريض اطفال.

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أجتمع مجلس كلية التمريض بجلسته.....والمنعقدة في.....وقد قرر منحه شهادة ماجستير علوم في التمريض.

التوقيع:
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/ / 2020

إقرار المشرف

أشهد بان إعداد رسالة الماجستير **(تأثير كتيب المعلومات على معارف الممرضين تجاه التهاب الكبد الرشحي نمط (ب و ث) لدى الاطفال في مستشفيات الاطفال بمدينة الموصل)** المقدمة من قبل الطالب **(عمر خيرالدين خالد مصطفى السلطان)** قد تم تحت إشرافي في كلية التمريض/ جامعة الموصل ، بوصف الرسالة جزء من متطلبات الحصول على شهادة الماجستير في علوم التمريض/ تمريض أطفال.

التوقيع:
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التاريخ: / / 2020

إقرار المقوم اللغوي

أشهد بان رسالة الماجستير الموسومة أعلاه ، قد تمت مراجعتها من الناحية اللغوية، وأنها صالحة من الناحيتين اللغوية و التعبيرية .

التوقيع:
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التاريخ: / / 2020

إقرار رئيس قسم علوم التمريض السريرية

بناءاً على الوصيتين المقدمتين من قبل المشرف والمقوم اللغوي، أرشح هذه الرسالة للمناقشة.

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التاريخ: / **/2020**

إقرار رئيس لجنة الدراسات العليا

بناءاً على الوصيتين المقدمتين من قبل المشرف ورئيس قسم علوم التمريض السريرية ، أرشح هذه الرسالة للمناقشة.

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وزارة التعليم العالي والبحث العلمي

جامعة الموصل / كلية التمريض

تأثير كتيب المعلومات على معارف الممرضين تجاه التهاب الكبد الرشحي نمط (ب و ث) لدى الاطفال في مستشفيات الاطفال بمدينة الموصل

رسالة تقدم بها

عمر خيرالدين خالد السلطان

إلى

مجلس كلية التمريض / جامعة الموصل

وهي جزء من متطلبات نيل شهادة الماجستير

في علوم التمريض

بإشراف

د. مازن محمود فوزي

أستاذ مساعد

ذو الحجة 1442 تموز 2020

وزارة التعليم العالي والبحث العلمي

جامعة الموصل / كلية التمريض

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عمر خيرالدين خالد السلطان

رسالة الماجستير / علوم في التمريض

تمريض اطفال

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ذو الحجة 1442 **تموز 2020**