International Journal Of Health Medicine and Current Research
E - ISSN : 2528 - 3189
P - ISSN : 2528 - 4398

International Journal of Health Medicine and Current Research
Vol. 1, Issue 02, pp.108-112, Desember, 2016

DOI:
10.22301/IJHMCR.2528-3189.108

Article can be accessed online on:
http://www.ijhmcr.com

EDITORIAL

INTERNATIONAL JOURNAL OF HEALTH MEDICINE AND CURRENT RESEARCH

HEPATITIS B GLOBAL ISSUES (EPIDEMIOLOGICAL PREVENTION AND MANAGEMENT)

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ARTICLE INFO

Article History:
Received 21th September, 2016
Received in revised form
20th October, 2016
Accepted 12th November, 2016
Published online 30th December, 2016

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Hepatitis virus infection is a global health problem. Type of hepatitis virus is hepatitis A virus (HAV),hepatitis B virus (Viruses HBV),hepatitis C ,hepatitis D and hepatitis E (HEV). The hepatitis virus G and TT also found can be transmitted through transfusion, but never cause hepatitis.

In Indonesia the hepatitis virus most caused by hepatitis A virus, Hepatitis B virus and hepatitis virus C. The three viruses can cause acute hepatitis.Where the hepatitis virus A prosentasenya most high range 39,8-68,3%. Successfully passes through the acute phase, hepatitis A will be healed,while the hepatitis B and C will develop into chronic hepatitis B or hepatitis C chronic diseases with the complications of the liver or develop HCC (*hepatocellular carcinoma).*

Epidemiology Hepatitis B

Hepatitis B Virus infection (VHB) is a major health problem in the world in general and Indonesia in particular. It is estimated that a third of the world popolasi never exposed to this virus and 350-400 million diantarannya is fowl hepatitis B.[1] higher prevalence obtained in developing countries,including Indonesia. In Indonesia, numbers fowl hepatitis B on healthy population is estimated to reach 4.0-20.3%, with the proportion of fowl outside Java is higher than in the Island of Java.[2.3] in genotypes,hepatitis B virus in Indonesia are mostly virus with genotypes B (66%), followed by C (26%),D (7%) and A (0.8%).[4]

Citation: Arend L. Mapanawang, 2016 "*Hepatitis B Global Issues (Epidemiological Prevention And Management)*", *International Journal of Health Medicine and Current Research*, 1, (02), 108-112.

The Journey of Disease Hepatitis B

This disease caused by infection by hepatitis B virus, a virus DNA from the family *Hepadnaviridae* with the virus in the form of scrolling and consists of 3200 base pairs. exposure of this virus will cause two exodus of clinical, namely: (1) acute Hepatitis which then healed spontaneously and form the immune system against this disease,or (2) developed into a chronic. Patients who are infected with VHB in chronic conditions can experience the 4 phases of the disease *immune phase, immune tolerant phase of the interior,*fowl phase inactive for, and reaktivasi phase. *Immune tolerant phase* is marked with the level of DNA VHB with high levels of alanine aminotransferase (ALT) is normal. While, *interior immune phase* occurs when the immune system to fight the virus. This is marked by fluctuations in the level of ALT and DNA VHB. Patients can then developed into fowl phase inactive for,marked with low VHB DNA (<2000 IU/ml), ALT normal, and damage the heart of at least. Often the patient on the fowl phase inactive for can experience the phase where DNA VHB again achieved >2000 IU/ml and inflammation heart back happened.[5-7]

Therapy Indication

An indication of the therapy on infections berdasasarkan kombanisa Hepatits B is determined from the four criteria,among others: (1)DNA serum VHB value, (2)HbeAg status, (3)ALT values and, (4)for histological characteristics of heart.

The value of DNA VHB is one of the most powerful indikatordan morbidity for hepatitis B Studies reveal that involves more than 3,000 respondents in Taiwan stated that the level of DNA VHB basalt predictors of liver cirrhosis and the most powerful KHS both in patients with HbeAg positive or negative. Patients with the level of DNA VHB between 300-1000 coffee/mL have relative risk 1.4 times higher to the liver cirrhosis on 11.4 years when compared with patients with DNA VHB not detected. Furthermore, patients with DNA VHB between 10^3-10^4 coffee/mL have relative risk 2.4, patients with DNA VHB between 10^4-10^5 coffee/mL have relative risk 5.4, and patients with DNA VHB $\geq 10^5$ coffee/mL have relative risk 6.7.[8] patients who have the level of DNA VHB $\geq 10^4$ coffee/mL also have the risk of KHS be 3-15 times higher than those who have the level of DNA VHB $<10^4$ coffee/mL. Refer to the description, VHB DNA level can be used as the indicator start therapy and therapy response indicator.

Therapy Result

Until now there are at least 2 types of medicines hepatitis B is widely accepted,namely the interferon (both conventional interferon,pegylated interferon α has a, or pegylated interferon α has b) and the analog nukleos(t)ida. The analog nukleos(t)ida is further composed of lamivudi, adefovir, entecavir, telbivudin, and tenifovir. All types of medicines is available and circulate in Indonesia, but specifically for tenofovir, when this guide arranged, peredaraannya in Indonesia only reserved for patients with HIV. Both interferon and analog nukleos(t)ida have flaws and advantages of each.

Interferon

Interferon(IFN) is inflammatory mediators physiological effects of the body function in the defense against the virus. IFN-α Conventional Wisdom is the first medicine is recognized as a therapy for chronic hepatitis B since more than twenty years ago. compounds have antiviral effects,immunomodulator,and antiproliferatif.10 Interfer on will activate the T cells sitotoksik, *natural killer cells*and macrophages. In addition,interferon will also stimulate the production of protein kinase specific function prevent protein synthesis and inhibits the replication of the virus. The protein kinase is also will stimulate apoptosis of cells infected with the virus.

Lamivudin

Analog nukleos(t)ida work by inhibiting the bind polymerase virus, compete with nukleosida or nucleotides and menterminasi DNA chain elongation. Lamivudin (2.3' of dideoxy-3-thiacytidine) is analog nukleos(t)ida first in 1998 is recognized as the hepatitis B drugs This drug to compete with dCTP to bind to the DNA chain viruses that will menterminasi elongation the chain. Lamivudin (LAM) drink orally with optimal dose 100 mg/day. The Gift Of one times a day it is possible given the time its beak reaching 17-19 hours in the cells that are infected.[10,11]

Adefovir Dipivoxil

Adefovir dipivoxil (ADV) is *adenosine monophosphate analog* working with compete with nucleotides cAMP to bind to the DNA of the virus and inhibits *from polymerase* and *reverse transcriptase* to disassociate the DNA chain VHB.This Drug start production since 2002 and given orally as much as 10 mg per day.[13] this drug have side effects in the form of renal function impairment (azotemia, hipofosfatemia,

acidosis, glicosuria, and proteinuria) a *dose-dependent* and reversibel. The side effects are also very rarely appear on the dose of 10 mg/day used, but should be done routine pemantautan the level of serum creatinine during the days of the therapy.[11]

Entecavir

Entecavir (ETV)is *2-deoxyguanosine analog.*This Drug works by inhibiting the DNA priming virus, *reverse transcription Polymerase* Chain of DNA negative and positive chain synthesis of DNA. In vitro research shows that this drug more potent than lamivudin and adefovir and is effective in patients with lamivudin resistance even though the potential is not the best in patients naive. Entecavir given orally with a dosage of 0.5 mg/day for patients naive and 1 mg/day for patients who experienced lamivudin resistance. Security profile entecavir good enough with the *barrier* resistance is high long-term research on animals showed an increased risk of some types of cancer, but was suspected of this type of cancer are specific species and will not occur on man.esp. Num

Telbivudin

Telbivudin (LdT) is L-nukleosida *thymidine analog* that effective against the replication of the VHB. This Drug given orally with optimal dose 600 mg/day.[11]

Tenofovir Disoproxil Fumarate

Tenofovir disoproxil fumarate (TDF) is the precursor of tenofovir,an analog nucleotides which effectively to hepadanavirus and a retrovirus. This drug was originally used as a HIV therapy, but research shows their effectiveness is very good to overcome the hepatitis B Oral Tenofovir on the dose of 300 mg/day. Until this time is still not found a heavy tenofovir side effects. But has reported the existence of renal impairment in patients with koinfeksi VHB and HIV.[10,12,14]

Health Officials

Petugas infected health chronic VHB requires special attention because antiviral indications on the health officer is not the same as an indication of infection patients chronic VHB therapy in general. Health officials with positive HbsAg and DNA VHB >2000 IU/ml can be given antiviral with *barrier* high resistance, such as entecavir and tenofovir. This is intended to prevent the transmission of VHB through medical procedure.[1]

PREVENTION

Immunization

Immunisation is one form of efforts to prevent the transmission of hepatitis B Currently there are two forms of immunization available, the active and passive immunization immunization. Active immunization achieved by providing hepatitis B vaccine Hepatitis B vaccines contain HbsAg purified water. Hepatitis B vaccines contain HbsAg serum taken from the patients with chronic hepatitis B that refined or from the results of the DNA of the cell gone recombination yeast to produce HBsAg. Each mL vaccines generally contain 10-40 µg proteins HbsAg.[15] vaccine would be induces the T cells that are specific to HBsAg and B cells is dependent on the T cells to produce antibodies anti-HBs Account as soon as 2 weeks after the first dose of vaccine.[16]

General Prevention

Hepatitis B is a disease that is transmitted through contact with the body fluid patients,such as blood and blood products, saliva, cerebrospinal fluid, peritoneum fluid, pleura fluid, amnion fluid, cement and liquid vagina, and other body fluids. Then the general prevention of infection of hepatitis B everything to avoid direct contact with the body fluid patients. This can be achieved by applying the universal prevention is good and with the screening done on high risk groups. The principles of universal awareness, like using gloves when working with the body fluid patients, waste handling the hypodermic needle, sterilization of the appliance with the right way before performing invasive procedures, and wash hands before handling the patients can reduce the risk of contracting, especially on medical workers , one of the groups most at risk of contracting hepatitis B

Special prevention Post Exposure

For those who are not vaccinated and exposed to the hepatitis B prevention of post-exposure in the form of a combination of HBIg (to reach the level of anti-HBs Account is high in a short time) and vaccine hepatitis B (for long term immunity and reduce clinical symptoms) must be given. In patients who are exposed by perkutan or sexual abuse , the status of HBsAg and anti HBs Account source of exposure and the exposed must be examined. When people are exposed to proven have immunity against hepatitis B or source of exposure proved HBsAg negative, giving prophylaxis post exposure is not required.

Counseling

Counseling and education play an important role in the prevention and management of hepatits B. As mentioned above, the success of hepatitis B therapy will reduce the risk of mortality and morbidity. In addition, the success of this therapy is also influenced by the compliance of medication patients. Then on every patient hepatitis B, following counselling must be given.

- Patients should avoid alcohol completely and reduce the food that has the possibility to be hepatotoxic drugs.
- Patients must be careful in consuming jamu, supplements, or drugs sold free.
- Patients over the age of 40 years must undertake a USG and AFP every 6 months for detection of liver cancer.
- Vaccination needs to be done on the sexual.
- The need for the use of condom for having sexual intercourse with a partner who has not been vaccinated.
- Patients are not allowed to exchange the brush teeth or shaving blade.
- The need to close the open wounds that blood is not the contact with other people.
- Patients are not allowed to She donated blood, organ, or sperm.

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