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Hepatitis B

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Study Confirms Tenofovir-based Treatment May Be Best for HIV-HBV Coinfection

An increase in HIV infection in Asia, where infection with the hepatitis B virus (HBV) is widespread, has forced researchers to refine treatment options for people coinfecting with both HIV and HBV. Australian researchers compared the success of 48 weeks of treatment with lamivudine (Epivir-HBV), tenofovir (Viread), or a combination of the two antivirals in 36 coinfecting patients.

They found a four-fold reduction in HBV DNA (viral load) among lamivudine-treated patients, a 4.5-fold reduction among those treated with tenofovir, and a 4.7-fold

reduction in those treated with both tenofovir and lamivudine.

The study confirmed current treatment guidelines that tenofovir is very effective in treating the coinfection, and that the combination of lamivudine and tenofovir did not provide any significant treatment advantage, according to the report in the August 2008 edition of *Hepatology*.

Development of Entecavir Resistance Occurs in Lamivudine-Resistant Patient

In the August 2008 issue of the *European Journal of Gastroenterology & Hepatology*, researchers described a 43-year-old male patient who first developed viral resistance to the antiviral lami-

vudine. Doctors then added the antiviral entecavir (Baraclude) to the ongoing lamivudine treatment for 30 weeks, and the patient's viral load dropped to undetectable levels.

Doctors discontinued just the lamivudine, and 45 weeks later the patient developed viral resistance to entecavir, and experienced a rebound in viral load. At this point, doctors treated him successfully with tenofovir, an antiviral that is effective against HBV that have developed mutations that allow it to "resist" the antiviral effects of other drugs.

This is significant, researchers noted, because it is one of the first cases of entecavir viral resistance developing in a patient who has already developed lamivudine resistance.

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Telbivudine Is Recommended, Especially in Patients Who Have Undetectable HBV DNA at Week 24

In the third phase of the GLOBE trial of the antiviral telbivudine (Tyzeka), patients who have the hepatitis B “e” antigen (HBeAg-positive) and those who do not (HBeAg-negative) all did better on telbivudine than on lamivudine after one year of treatment.

The telbivudine-treated patients had lower HBV DNA levels, and lower rates of viral resistance. The superiority of telbivudine was maintained for up to two years during the trial, according to a study published in the July 2008 edition of *Future Virology*.

Researchers noted that patients who responded well and developed normalized alanine aminotransferase (ALT) levels – which indicates no liver damage – and undetectable HBV DNA at week 24 are the best candidates to continue telbivudine treatment.

Continuation of telbivudine is safe, and should not cause viral resistance if patients have undetectable HBV DNA at week 24 of treatment, researchers noted.

High Viral Loads in Transplant Patients Increase Risk of Cancer Recurrence

High viral load at time of a liver transplant predisposes patients to recurrence of liver cancer, according to a report by Hong Kong researchers published in the July issue of the *American Journal of Gastroenterology*.

Researchers reported that a viral load exceeding 2,000 international units per milliliter (IU/mL) at the time of surgery put patients at high risk of cancer recurrence. Other contributing factors included a tumor size exceeding 5 cm, and alpha fetoprotein (AFP) levels (which indicate presence of a tumor) higher than 1,000 ng/mL, and age older than 60.

They recommended that transplant patients

with high viral load should receive antiviral therapy before and after surgery to slow replication of the virus and prevent recurrence of cancer.

Patient Treated with Pegylated Interferon Develops Unique Type 1 Diabetes

In a unique case, Chinese researchers reported on a 33-year-old woman who suddenly developed type 1 diabetes while being treated with pegylated interferon. The patient had no prior history of diabetes, according to the report in the August 2008 issue of the *World Journal of Gastroenterology*.

Interferon treatment was immediately stopped, but five months later her diabetes persisted, though her HBV DNA became undetectable and her ALT levels normalized.

Because inducement of diabetes by interferon is rare, researchers urged doctors to carefully monitor patients’ health while undergoing interferon treatment in order to prevent damage to their pancreas.

Nasal Spray Nano Vaccine for Hepatitis B Shows Promising Results in Animals

A new hepatitis B vaccine that is introduced to the body through a nasal spray appears effective in early trials in animals. Currently, the hepatitis B vaccine requires three injections, and must be refrigerated, which makes it difficult to provide to people in rural regions.

Scientists at the Michigan Nanotechnology Institute for Medicine and Biological Sciences at the University of Michigan developed the experimental vaccine that uses one hepatitis B antigen mixed with an emulsion of soybean oil, water, alcohol, and detergents.

In early experiments, two applications of the vaccine conferred protective immunity. The avoidance of injections lowers the risk of spreading needle-borne infections in regions where resources are scarce and syringes are inappropriately reused. The study was published in the online journal *PLoS ONE*.

Hepatitis B Genotypes And Mutations May Influence Who Develops Liver Cancer

Patients who have genotype C and a mutation in the basal core promoter region (called A1762T/G1764) appear to be at increased risk of liver cancer, according to a study published in the August 12 online issue of the *Journal of the National Cancer Institute*, while patients with a genetic mutation in the precore region of the virus (called G1896A) were at decreased risk.

Currently, researchers have identified eight genotypes and a variety of mutations in two regions of the virus, referred to as the precore and the basal core promoter.

Taiwanese researchers followed 2,762 patients and monitored the genetic make-up of their virus over more than 11 years to see which patients developed liver cancer and what impact genotype and viral mutations had. Ultimately, 153 of the patients developed

liver cancer.

In an accompanying editorial in the journal, editors stressed that determining the presence of these mutations and genotype in patients could help identify which patients are at increased risk of liver cancer in order to ensure they received treatment and were monitored regularly.

Probiotic Yogurt May Help Reverse Minor Hepatic Encephalopathy

In cirrhotic patients, minimal hepatic encephalopathy – when the brain is impaired by the build-up of toxic substances normally removed by the liver--may decrease with probiotic yogurt supplementation, according to a study published in the July issue of the *American Journal of Gastroenterology*.

Minimal hepatic encephalopathy (MHE) affects up to 60% of people with cirrhosis – severe liver scarring.

In a randomized study, researchers examined the effect of a

probiotic yogurt on reversal of MHE and adherence in nonalcoholic cirrhotic patients. The subjects received probiotic yogurt treatment for more than 60 days. The researchers reported that 12 yogurt patients (71%) reversed MHE but none of the patients in the control group experienced declines in MHE.

U.S. Hospitals Are Failing to Vaccinate Newborns on Time

In 2005, the Advisory Committee on Immunization Practices (ACIP) recommended that all hospitals vaccinate medically stable newborns weighing at least 4.4 pounds before they leave the hospital.

Researchers, writing in the Aug. 1, 2008, issue of the *Morbidity and Mortality Weekly*, report that only about half of infants are vaccinated against hepatitis B by the third day of life, when they typically leave the hospital. To increase these rates, ACIP is encouraging U.S. hospitals to improve their immunization rates.

Occult HBV Infection May Be Source of High Liver Cancer Rates in Diabetic Patients

The prevalence of occult HBV infection – which occurs when people test positive for the hepatitis B surface antibody but have detectable HBV DNA in their bloodstream – is relatively frequent among patients whose immune system is weakened or stressed by illnesses.

Turkish researchers studied the prevalence of occult HBV infection among 200 people who tested positive for surface antibodies. Half of them also had diabetes type 2. The researchers found occult HBV infections in 11% of the diabetic patients and in 3% of the non-diabetic control group.

The ALT levels in diabetic patients were similar to those in the control group.

“These data suggest that the prevalence of occult HBV infection is higher in diabetics compared with healthy controls and this may contribute to the increased prevalence of primary hepa-

tocellular carcinoma (liver cancer) in diabetics,” the researchers wrote in the July 2008 issue of the *European Journal of Gastroenterology and Hepatology*.

Sperm Quality Lower in Men with Chronic Hepatitis B and C

Little is known about the impact of HBV or hepatitis C virus (HCV) infection on sperm quality, so researchers analyzed sperm quality from patients infected with the two viruses.

While 35.7% of HBV- and HCV-infected patients had healthy semen quality, researchers observed reduced motility (movement), and higher death rates among sperm from infected patients, compared to those from control groups.

While sperm quality was not impaired, the fertility index of sperm from the patients with hepatitis B and C was significantly lower than in the control group, according to the report in the June 2008 journal *Andrologia*.

Lamivudine Resistance Quickly Recurs When Patients Are Retreated with Lamivudine

South Korean researchers found that once patients develop viral resistance to lamivudine, they are prone to developing viral resistance to the antiviral quickly, and lamivudine should be avoided in these patients.

The researchers, writing in the July 2008 issue of the *World Journal of Gastroenterology*, reported treating four lamivudine-resistant patients with both adefovir (Hepsera) and lamivudine. Over time, the patients also developed adefovir resistance and were then treated with just lamivudine. They all quickly developed high viral load and elevated ALT levels as viral resistance to lamivudine rebounded quickly. The doctors then treated them with a combination of adefovir and entecavir, which successfully suppressed their viral load.

These cases demonstrate that lamivudine

retreatment leads to rapid re-emergence of resistance with significant viral rebounds and liver damage. “Sequential administration of lamivudine in patients with a prior history of YMDD (lamivudine-related) mutation should be abandoned,” they wrote.

Immune Protection Against Hepatitis B Continues After Vaccination, Despite Drop in Antibodies

Researchers continue to look for ways to measure how long “protective immunity” exists after an individual is vaccinated against hepatitis B. Over time, the number of protective antibodies decline, but researchers believe the immune system remains a “memory” of the infection and can generate antibodies to fight the virus if the infection occurs.

German researchers compared the number of surface antigen-specific memory B cells, needed to fight HBV infection, in vaccinated individuals against the amount of

antibodies (called titers).

Even though the number of titers declined, the memory B cells maintained their numbers. “Our results indicate sustained B cell-mediated protection against HBV despite waning antibody titers,” researchers wrote in the July 2008 issue of the *Journal of Infectious Disease*, which indicates continued protection against infection despite the decline in antibodies.

Lamivudine Deters HBV in Patients Co-infected with HCV, HBV and HIV, But Is Ineffective Against HCV in Patients with These Triple-Infections

Lamivudine’s anti-HBV effectiveness in HIV-infected patients appears to be greater in individuals who are also co-infected with HCV, according to a study published in the Aug. 1, 2008, edition of the *Journal of Acquired Immune Deficiency Syndromes*. But the study also found that lamivudine, an antiviral used against

HIV and HBV, appeared to promote HCV replication in patients infected by all three viruses.

With the advent of more effective HIV treatment, researchers are finding that liver disease resulting from HBV and HCV co-infections, are emerging as the leading cause of death among these patients coinfecting with all three viruses, and they are struggling to find effectiveness treatments for these triple-viral infections.

Chinese researchers studied HBV and HCV replication and mortality in 55 patients with triple infections, and compared it to 73 patients co-infected with only HIV and HBV.

Among HBeAg-negative patients, 25% of patients with the triple infection had detectable HBV DNA, compared to 55% of patients with just HBV-HIV co-infection.

After 15 months of antiviral treatment, which included lamivudine, 6% of patients with triple infection had detectable HBV DNA, compared with

30% of HBV-HIV co-infected patients.

Curiously, the investigators found that lamivudine appeared to increase HCV replication. Of the triple-infected patients treated with lamivudine, 80% had detectable HCV RNA compared with 43% of triple-infected patients who did not receive lamivudine.

Additionally, death rates from liver disease were lower among patients with HIV, HCV and HBV, compared to those with HBV and HIV.

Additional studies are needed to define the best antiviral treatment for patients with triple infections, the researchers wrote.



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A Basic Guide to Hepatitis B

HEPATITIS B SUPPORT PROJECT

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The information in this guide is designed to help you understand and manage HBV and is not intended as medical advice. All persons with HBV should consult a medical practitioner for diagnosis and treatment of HBV.

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Easy B Facts

Sex and Hepatitis B

In the U.S. the most common way people get hepatitis B (HBV for short) is from having sex with someone who has HBV. HBV is in blood and it is also found in semen, vaginal fluids and menstrual blood. All types of sex (oral, anal, vaginal sex) can transmit HBV.

The HBV vaccine is the best way to protect you and others from getting HBV. Other ways to prevent sexual transmission of HBV is to use condoms or rubbers for oral sex on men as well as for vaginal or anal sex. Change condoms between anal, vaginal and oral sex, even if a male has not ejaculated or come.

The two best ways to protect yourself and your sexual partners from hepatitis B are to make sure everyone is vaccinated against hepatitis B, and to practice safer sex.

Damers, such as latex dental dams, can be used for oral sex to reduce the risk of HBV transmission. Dental dams can be found in medical supply stores. You can make a homemade dental dam by cutting a rolled condom in the center and opening it up. Plastic wrap is not an effective substitute.

Remember.....

- The best way to protect yourself from HBV is to be vaccinated against HBV. The vaccine consists of 3 shots within 6 months. The vaccine is safe and effective.
- Always practice safer sex -- HBV can be transmitted during anal, oral or vaginal sex or when infected fluids enter the mouth, nose or eyes. Practicing safer sex will protect you from HBV, HIV and other sexually transmitted diseases.

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