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# HCV Advocate

A monthly newsletter of the Hepatitis C Support Project  
[www.hcvadvocate.org](http://www.hcvadvocate.org)

## Report From Dallas: AASLD 2001

### *Highlights From Some of the Most Important Studies at the 2001 American Association for the Study of Liver Disease Conference*

By Patricia Perkins, MS, MPH,  
Independent Healthcare Consultant  
and Alan Franciscus, Editor-in-Chief,  
HCV Advocate

The downturn in the economy and heightened travel advisories in light of recent terrorist attacks saw a huge drop-off in conferees this year in Dallas, Texas. Last year's conference and exhibitors totaled almost 7,000 persons; this year hovered around 2,800, with almost 800 people canceling even after paying registration.

There were fewer public health, epidemiological or special population sessions at this year's conference. With only one of the two pegylated interferon (IFN) products currently FDA approved in this US market, perhaps less excitement than with last year's anticipation of a two-company product launch by mid-2001.

This report has been divided roughly into the following categories, primarily based on what regular readers of our postings and the HCV Advocate have requested: HCV treatment for pre and post liver transplant patients; issues, complications, and ethics of living liver donors; special populations—women, veterans, Latinos, prisoners; possible surrogate markers for fibrosis and/or end of treatment response (ETR); HCV treatments and novel therapies.

#### **Liver Transplantation**

The most public health oriented message among the liver transplant presentations was the negative impact continued cigarette smoking has on development of cardiovascular disease (CVD) morbidity among post-transplant HCV+ patients. Dr. Pungpapong and colleagues from Albert Einstein in

Philadelphia followed a cohort of 288 transplanted HCV+ patients who received cadaveric liver transplants in that center from May 1995-April 2001. Study endpoints included both graft rejection, CVD morbidity, sustained immunosuppression, and control of HCV disease management post-transplant.

The take-home message from this presentation was that EVER or FORMER smokers experienced a 2.5 times greater risk of developing an arterial complication within the 6-month post-transplant period than non-smokers. The two primary arterial problems were hepatic arterial thrombosis and hepatic arterial stenosis or HAT and HAS. These are blockages in the hepatic artery in the liver. Cigarette smoking's impact on development of ventricular problems was not statistically significant. Further, this group reviewed how long prior to receipt of liver transplant a patient would have to stop smoking to receive any potential benefit in NOT developing CVD problems post-transplant.

The group reported that patients would, ideally, have to stop smoking a minimum of 2 years prior to transplantation to reduce this risk by 50%. The study group would have to enroll 8 non-smokers with that history to prevent one arterial complication. Your

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# AASLD: Optimism for the Future

By Lucinda K. Porter, RN

In November I attended the annual meeting for the American Association for the Study of Liver Diseases. My mind is swimming with ideas to write for this month's Advocate, but my heart cannot seem to settle on one subject. What I think you would most like to hear is what I would most like to tell you - that a foolproof, low-cost treatment side effect cure is on the horizon. Unfortunately, there was no such announcement at this meeting.

In spite of this, I remain optimistic. Each year the hepatitis C (HCV) research looks a little more favorable, either because scientists find more creative uses of existing drugs or because the natural history studies support the belief that most of us will die with HCV, not of HCV. It has been pointed out that only 20 to 30% of HCV+ patients will progress to cirrhosis. Inverting these percentages, Dr. Aijaz Ahmed, a hepatologist at Stanford University Medical Center, remarked, "for every 100 HCV+ patients I see, 70 to 80 will have a mild form of this disease." This is a powerful statement, because it implies that the majority of us can put fear aside.

As for the meeting itself, the spirit of those who attended impacted me the most. Scientists, clinicians, professionals, and advocates from all over the world gathered to learn and to teach. The exchange of ideas and data is exciting to witness and ultimately benefits us all. There was a medley of research presented. What follows is a brief highlight of a few of the abstracts that caught my attention. Bear in mind that research is not a black and white phenomenon. Some of these studies are small and although the data creates an impression, it is not necessarily absolute. Also, research is not conclusive until it is independently reproduced.

◆ Data was presented that showed those with HCV have cognitive deficits that are independent of depression, psychiatric, or substance use factors.

◆ Overall those with HCV have greater fatigue than those without HCV. I find it somewhat amusing to see hard data on what patients have known for years.

◆ One study speculated that one of the factors that may explain the under representation of HCV+ African Americans in clinical trials is because African Americans are more likely to have normal liver function tests,

commonly referred to as ALTs. Study entrance criteria usually requires abnormal ALT levels. However, despite the tendency for normal ALTs, progression to cirrhosis may be the same as those with normal ALTs.

## HealthWise

◆ A study conducted in France looked at women with chronic HCV and suggested that menopause may accelerate the progression of liver fibrosis. Based on this research, hormonal replacement, birth control medication, and pregnancy may have a beneficial impact on liver fibrosis.

◆ A study of Latina women showed this group to have a greater amount of cirrhosis and activity in the liver than Caucasian women.

◆ Younger patients are more likely to achieve a sustained viral response with current HCV treatment.

◆ A study concluded that overall, treating HCV+ African Americans in the prison setting showed good compliance and feasibility but the overall response rate to current antiviral therapy was lower than in Caucasians.

◆ A very small study looking at patients with normal ALT levels suggested the possibility of a sustained viral response of 47%.

◆ For those with elevated ALT levels, being overweight may contribute to a faster progression of fibrosis. "Overweight" was defined as a Body Mass Index (BMI)\* of 25.

◆ There was an abstract looking at early data from the HALT-C clinical trial. This study is a long-term maintenance trial that focuses on prevention of disease progression. Participants are non-responders to prior treatment. Peginterferon -alpha-2a and ribavirin are the investigational drugs being used in this study. Mitchell Schiffman, MD of the Virginia Commonwealth University Health System is the Principal Investigator. The conclusion reached from this very preliminary stage of this study is that "re-treatment is well tolerated and associated with a significant rate of virologic response."

In summary, although the research presented at this meeting did not make front-page news, as a community, we have every reason to feel optimistic. The hard work and dedication of the spirited people who attended this meeting is as inspiring as the patients

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# Focus On: Hepatocellular Carcinoma

By **Liz Highleyman**  
Contributing Editor

Liver cancer is a potential long-term consequence of chronic hepatitis. The type of cancer seen in people with chronic HCV or HBV is called hepatocellular carcinoma (HCC). HCC typically develops in the later stages of HCV infection, usually after 25-30 years. HCC usually occurs in people with liver cirrhosis (scarring). An estimated 3-5% of HCV-positive people with cirrhosis will develop HCC annually, a rate that many expect to rise as people infected years ago begin to develop liver damage. However, better HCV treatments that slow or halt liver disease progression may eventually stabilize or reduce HCC rates.

HCC is a type of primary liver cancer, that is, a cancer that develops first in the liver, as opposed to one that originates elsewhere in the body and spreads (metastasizes) to the liver. It is not known exactly how HCV causes liver tumors. Some experts believe that the prolonged presence of inflammation, scarring, and regeneration of damaged liver cells can lead to out-of-control cell growth.

## **Incidence & Risk Factors**

The rate of HCC has increased in recent years, and most experts attribute this to rising HCV rates. Researchers at the Albuquerque Veterans Affairs Medical Center estimate that HCC incidence has increased over 70% from the mid-1970s to the mid-1990s. Although HCC remains relatively uncommon in the U.S., it is the most common cancer in some parts of the world (especially in Asia) where HBV infection rates are high. Only a minority of people with HCV will go on to develop liver cancer.

About 25% of HCV-infected people develop cirrhosis after 20-30 years with the virus, and a small percentage of these - estimated at about 5% - will develop HCC. The cancer is more common in men and people over age 50. As many as 80% of people who develop HCC have existing cirrhosis. HCV and HBV are now the most common causes of HCC, but people with cirrhosis due to certain other conditions (e.g., alcoholism, hemochromatosis, porphyria cutanea tarda, tyrosinemia) also have a higher risk. Coinfection with HCV and HBV, or chronic hepatitis plus alcoholism, increases HCC risk further. The

risk of developing HCC is higher in people with chronic active hepatitis and persistent detectable HCV RNA viral load. Studies have not confirmed whether specific HCV genomes are more highly associated with HCC.

## **Symptoms**

HCC is hard to detect at early stages because there are few specific symptoms. People may experience a general feeling of malaise, loss of appetite, weight loss, fever, fatigue, or weakness - the same symptoms as HCV disease itself and the side effects of some of the drugs used to treat it. As a liver tumor develops, a person may experience pain in the upper right side of the abdomen or in the back around the right shoulder blade. Sometimes a mass or lump can be felt from outside the body. Some people may have generalized abdominal swelling or jaundice may develop.

## **Diagnosis & Staging**

Various tests may be used to diagnose liver cancer and determine its stage. Blood tests that gauge the general health of the liver (e.g., liver function tests, liver enzymes) can give an early indication of liver disease progression. More specifically, a chemical called alpha-fetoprotein (AFP) is often found in the blood of people with HCC and may act as a biological tumor marker. AFP is elevated in more than half of people with HCC, but levels are often normal in people with small liver tumors. Marginally elevated levels may occur in people experiencing a hepatitis flare-up and AFP may be present in people with certain other types of cancer, so it is not a sure indication of HCC.

Scans such as ultrasound, CT scans, or MRI images of the abdomen and hepatic arteriography of the liver (in which dye is injected to visualize liver blood vessels) can all help detect liver tumors.

Liver biopsy is considered the "gold standard" of HCC diagnosis. In this procedure, a thin needle is injected into the abdomen under local anaesthesia and a small liver tissue sample is withdrawn for examination under a microscope. This test can reveal dysplastic (abnormal) or cancerous cells. In a differential diagnosis, it is important to distinguish HCC from bile duct carcinoma (cholangiocarcinoma),

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## Hepatocellular Carcinoma

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metastatic cancer that has spread to the liver from elsewhere in the body, hepatoblastoma (a liver cancer that usually occurs in children), and benign (non-cancerous) liver tumors. Once HCC is diagnosed, its stage is determined to help your doctor decide on the best treatment and whether surgery is an option.

Various tests (CT scans, MRI, ultrasound, angiography) are done to determine whether the tumor is encapsulated, what its blood supply is like, and whether there are any detectable metastases either within or outside the liver. Laparoscopy, in which a slender lighted instrument is inserted into the abdomen, may be used to assess liver damage or lymph node involvement.

HCC is classified in three stages:

- ◆ localized resectable - a single tumor that can be completely removed surgically, good liver function and minimal or no cirrhosis;
- ◆ localized unresectable - cancer in only one part of the liver that cannot be completely removed surgically due to location or medical condition (e.g., cirrhosis);
- ◆ advanced - cancer that has spread to both lobes of the liver (multifocal disease) and/or to other parts of the body (most often the lungs or bone).

### Treatment

HCC is hard to treat, in part because it is often not detected until the cancer is advanced. Only about 5% of people with HCC live five or more years after diagnosis without treatment. Fortunately, better screening of people with HCV has enabled more cases to be found and treated early. Treatment success depends on several factors including extent and

location of tumors, degree of cirrhosis, and the person's age.

Surgical removal of the cancer (hepatic resection) can be effective if tumors are small, few, and limited to one lobe of the liver. Success rates are highest in people who retain good liver function. In some studies, 5-year survival rates have been as high as 40-60%, but survival rates decrease as the extent of cirrhosis increases. Resection is not usually possible if the tumor impinges on the major blood vessels.

Two other treatments, which are often tried if a tumor is too large or poorly located to remove surgically, are percutaneous ethanol injection (PEI) and transcatheter arterial chemoembolization (TACE). In PEI, ethanol is injected directly into the tumor to reduce its blood supply and kill the cancer cells; acetic acid and hot saline solution may also be used. TACE involves blocking the hepatic artery and injecting chemotherapeutic drugs directly into the tumor's blood supply; this method keeps the drugs in contact with the cancer for a longer time. In some studies, PEI and/or TACE success rates are similar to those for resection surgery. Again, these therapies are most effective if tumors are small and localized, and if existing liver function is good. In more advanced cases, regional or systemic (whole body) chemotherapy may be tried, using various anti-cancer drugs such as adriamycin, cisplatin, doxorubicin, mitomycin, vincristine, and/or 5-fluorouracil.

In regional chemotherapy, drugs may be injected into the liver's blood supply using a subcutaneous port or an implantable pump. Studies tend to show a

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**Hepatitis C Support Project - A Tides Center Project**

# Women and Hepatitis C, Part 1

By **Liz Highleyman**  
Contributing Editor

In the past decade, chronic hepatitis C has become a widespread health concern. An estimated four million Americans are infected with hepatitis C. More men than women have the disease; most experts believe this is because men are more likely to have been exposed to the hepatitis C virus (HCV), not because they are more susceptible than women to infection.

## HCV Risk Factors

The risk factors for contracting HCV are similar for women and men. Sharing needles for injection drug use is a major risk. Nurses and others who work in healthcare settings may contract HCV when they come into contact with blood. Other methods of transmission include shared equipment used for non-injection drugs (for example, cocaine straws and crack pipes); re-use of needles for acupuncture, tattooing, or body piercing; and shared personal items such as razors, manicure tools, and toothbrushes. Be sure to cover any cuts or sores to prevent contact with blood, and properly dispose of used tampons and sanitary napkins. Hepatitis C is not spread through casual contact such as sneezing, coughing, hugging, or sharing drinking glasses.

## Sexual Transmission of HCV

Sexual transmission of HCV is uncommon. Only a small percentage of people - estimated at 0-

3% – contract HCV through unprotected heterosexual intercourse with a steady, monogamous HCV-positive partner. According to the National Institutes of Health (NIH), people in long-term, monogamous relationships do not need to change their current sexual practices, although they should discuss safer sex if either partner is concerned about transmission. The NIH recommends that people who have multiple sexual partners should practice safer sex, in particular using latex condoms. Some studies indicate that sexual transmission from men to women is more efficient than transmission from women to men, as is also the case with HIV. The risk of HCV transmission through woman-to-woman sex has not been studied. Because HCV is spread through blood, it is more likely to be sexually transmitted when a woman is having her menstrual period.

## HCV Progression & Symptoms in Women

Studies show that hepatitis C progression is slower and liver damage tends to be less severe in women than in men.

Women are more likely to completely clear HCV from their bodies after infection and never develop chronic disease. Women who do have chronic hepatitis C tend not to develop liver cirrhosis (scarring), liver cancer, or liver failure as

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reporter asked two questions of this investigative team: (1) were they able to tease out if there were less arterial problems among occasional, as in < 1/2 pack daily smokers than other smokers - No, they are currently assessing this; and (2), given that a trend for worse arterial problems seemed to be present in women transplant patients, what role, if any, does current or historical use of hormonal—particularly oral contraceptive—play in increasing arterial problems.

The investigator indicated that most of these women were of menopausal age and that they had neither asked nor answered that question nor assessed if use of hormonal replacement therapy (HRT) may decrease incidence of arterial problems in this population.

### **Costs and Other issues in HCV treatment for pre and post-liver transplant patients**

Two additional papers in this afternoon series looked at treatment for hepatitis C pre- and post-liver transplant, and for patients receiving living donor liver transplants. It is well known that HCV+ transplant patients have more problems with graft (liver or other organ) rejection post-transplant than non-HCV+ patients. Rates of infection may also be higher in the HCV+ group, and in most patients HCV disease returns within one year post-transplant. The big debate is whether and when to treat transplant patients - pre or post transplant, and assessing the very real cost constraints that treatment may present in this population.

The first paper, presented by Dr. Saab for the UCLA liver transplant and hepatology team, compared the cost-efficacy of standard IFN+ ribavirin (non-pegylated IFN) treatment in post-liver transplant patients to that of no treatment using a decision analysis model initially developed for post-lumpectomy and mastectomy breast cancer patients.

This model looked at cost savings potentially realized by preventing cirrhosis in a hypothetical HCV+ post-transplant group. The key finding from this study is that while antiviral therapy assumed to cost \$13,881 for a course of treatment prevented 31

new cases of cirrhosis, 4 deaths, and offered a substantial cost-effectiveness ratio of greater than \$100,000, the model is most robust if: a sustained viral response is at least 40% and the antiviral treatment costs were less than 38% of the baseline treatment costs or about \$4300. This may not be a workable model in sicker or older patients with more co-morbidities post-transplant, and will have to be re-evaluated for the new pegylated IFN products. This research group is currently re-analyzing this model with use of pegylated IFN + ribavirin and with non-genotype 1 patients.

A second paper looked at the impact of HCV treatment in pre-transplant patients receiving living donor liver transplants. While living donor liver procedures remain controversial given higher expected mortality and morbidity among the donors, the procedure provides an important life-giving resource to recipients. This procedure may be the only mechanism for receiving a liver transplant among methadone or other drug treatment patients who are often denied access to cadaveric livers. This paper was presented by Dr. Trotter and colleagues from the University of Colorado in Denver, CO. Since live donor liver transplantation (LDLT) is a scheduled medical procedure, this Colorado group set up a small study among 24 patients receiving this procedure at their center in the period of 8/97-3/01. Twelve (12) of the patients received pre-transplant anti-viral therapy, six (6) with standard of care combination therapy (non-pegylated IFN) with ribavirin, and another six patients received a modified low accelerating dose (LADR) of IFN and ribavirin with gradually accelerating levels of ribavirin. The regimen was well tolerated in all groups, 50% (3 patients) were non-responders pre and post-transplant and 3 patients were sustained viral responders pre and post-transplant (last procedure completed 3/01). Four of these six patients were genotype 1, and one genotype 1 patient was a sustained viral responder both pre and post-transplant. Despite the small sample size, this research team felt that pre-treatment with standard anti-viral therapies might reduce post-transplant re-infection with HCV and post-transplant graft rejection and death from recurrent HCV. An addi-

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tional study is underway with the new pegylated IFN product and will be submitted to DDW 2002.

### Other Transplant Issues

A great deal of debate emerged within many of these sessions about the morbidity issues for living liver donors. In brief some interesting findings included: need for better and more aggressive cardiovascular disease (CVD) screening among living liver donors because of the development of CVD particularly among female and older donors; the role hormonal contraceptive use may play in increasing cardiovascular disease morbidity for female living liver donors; the negative impact advancing age of the donor livers (both cadaveric and living donors) may have on transplant recipient response (livers from donors over age 60 seem to result in more graft rejection and higher infections); and the interaction of recipient gender and HCV on graft rejection (female livers to male donors resulting in the highest percentage of rejection, which may be accelerated or mediated by female sex hormones). In many transplant centers it is often the female member of families who elect to donate a portion of their liver to male partners, spouses, or male children, thus the acute interest in this topic. Since most of these sample sizes were quite small (under 25 cases), multi-center studies with pooled data would be valuable in further analysis. Expect more on this topic from our reports from DDW in May 2002.

### Surrogate Markers of Fibrosis

Liver biopsy and the accompanying pathology reports from this procedure remain the gold standard for determining the level of liver damage among HCV+ persons. Given cost constraints, high numbers of medically uninsured persons with HCV, and fear of the actual biopsy procedures, serum (blood) tests that might reflect liver damage are needed and would contribute greatly to the HCV screening evaluation.

On Monday, November 12, 2001, two informative posters looked at novel ways and markers that might provide a measure of liver damage. One of these papers presented early data from a 13-center European study of a panel of serum markers compared to the biopsy gold standard. Dr. Rosenberg and colleagues from the University of Southampton in England

presented this first study. Using serum markers that included: platelets, creatine, and eight different cytokine or other markers, this 13-center study looked at biopsy and serum markers for over 900 patients. Biopsy data was reviewed by two blinded (to other result) pathologists, and serum samples were analysed in one standard reference lab. The serum markers were able to predict the extent of fibrosis at a level comparable to that provided by biopsy review of two independent pathologists. This cohort of 900 patients are currently in long-term follow-up, so expect more follow-up data from this analysis from DDW 2002 and AASLD 2002. A second Canadian study presented by Dr. Ibrahim of the Sunnybrook and Women's College Health Sciences Center in Toronto, Ontario, looked at the role of transforming growth factor (TGF-beta), a cytokine (mediator of inflammation) as a fibrosis predictor, pre-treatment, end of treatment and at six-month following among 56 patients on pegylated IFN + ribavirin. In a separate analysis of weight based dosing, this study also was designed to analyse the impact of varying levels of ribavirin in sustained virologic response, which has been reported elsewhere. TGF-beta levels were found to correlate well with histological fibrosis markers from biopsy and inflammation score at pre-treatment, end-of-treatment, and six-month follow-up. The investigator indicated that she believed this could represent a strong predictive marker and an important adjunct to community-based HCV screening programs, particularly in resource poor settings.

### HCV Therapies

Infergen - Recently, Intermune, Inc. acquired the rights to market and distribute Infergen (CIFN) from Amgen, Inc. In results presented on the combination of Infergen and ribavirin showed preliminary data that suggests the combination of Infergen and ribavirin may be more effective than the standard dose used in the combination of Intron A and Rebetol. The patients in this study were treated TIW with 15 mcg CIFN versus 3 MU Intron A. All patients received 1-gram of ribavirin daily. It should be noted that 15 mcg of CIFN is equivalent to approximately 5 MU of Intron A. After 72 weeks, the antiviral sustained response (SR) were 31% for group 1 and 44% for group 2 (p=0.4). Serious adverse events

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were observed in 3% of all subjects and dose modification was reported in 32% of group 1 and 43% for group 2. Sustained virologic response rates are pending completion of study.

### **Peg-Intron plus Rebetol**

Peg-Intron and Rebetol (ribavirin) studies reported at AASLD consisted of on-going studies and only interim results were presented.

Treating previous treatment non-responders is always a challenge. The interim results of a study to treat non-responders to Intron A and Rebetol with Peg-Intron plus Rebetol resulted in 26% of the patients had a virologic response after 24 weeks of treatment (halfway through therapy). Another large ongoing study of non-responders to Intron A mono therapy who were retreated with Peg-Intron (1.5 mcg/kg/week) plus Rebetol (800 mg/day) for 48 weeks reported that the 41% of the participants were HCV negative after 24 weeks.

### **African Americans and ALTs**

Previous studies have suggested that African Americans (AA) tend to have lower mean ALT values, and as a result, African Americans may be more likely to be excluded from clinical trials and from treatment consideration.

This study was designed to assess the degree of histologic damage in HCV infected African Americans patients with normal and abnormal liver enzymes as compared to non-AA patients.

In summary, when comparing AA to non-AA, a lesser degree of histological progression is seen, even within patients with abnormal ALT values. This leads us to believe that the degree of liver disease progression cannot be predicted by liver enzyme status. Cirrhosis is shown to be prevalent among AA patients with normal or abnormal ALT (24% vs 26%, NS). Even when reducing the ALT upper limit of normal to 40 U/L, the prevalence of cirrhosis is 19% among AA with normal ALT. As reflected by HAI score, AA with normal ALT are just as likely to develop significant histological disease as their counterparts with the abnormal ALT. African Americans, as a whole, have significantly lower ALT or normal ALT values. Despite normal ALT values, they progress to cirrhosis at the same rate as those who present with abnormal ALT.

In concluding, these studies indicate that one of the reasons that African Americans are disproportionately under represented in major clinical trials may be due to a greater frequency of normal ALT in this population. As the incidence of cirrhosis in the African Americans population is similar whether ALT values are normal or abnormal, these patients should be considered for enrollment in large, multi-centered clinical trials

### **Quality of Life**

In another study, the quality of life of patients was significantly enhanced for the group that was treated with Pegasys compared with the interferon alfa-2b plus ribavirin. The summary findings of this report found that patients reported less intense or disabling pain, less health-related interference in normal social activities, and more energy. These findings are important because better QoL during treatment ensures better compliance and less premature discontinuation from therapy.

### **Next Generation of Ribavirin**

Results of a study on Levovirin (ICN), a L-isomer of ribavirin were presented that showed that Levovirin, a potential HCV therapy, demonstrated similar immunomodulatory activity as ribavirin, but without the toxicities. Even though it is only in phase I studies, it is hoped that this new medication will not cause hemolytic anemia that is a common side effect of ribavirin. Another drug that could replace ribavirin is currently being tested is Viramindine, a prodrug of ribavirin. In a study done on Cynomolgus monkeys, it was shown that Viramindine was absorbed by the liver with a lower absorption level in red blood cells. Additional research needs to be completed on both drugs to confirm these results. Visit our website for more detailed information on studies presented at this year's AASLD Conference.

We are already looking forward to the next big HCV conference that will be held in San Francisco, CA in May 2002 and more information on completion on some of these studies and new studies that will hopefully advance our understanding of HCV.

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low survival rate (about 20%) for chemotherapy alone. Other methods include cryosurgery (freezing the tumor), radiofrequency thermoablation, and microwave coagulation therapy. In addition, new treatments such as immunotherapy and gene therapy are undergoing clinical trials.

Often a combination of different treatments is used, for example resection surgery followed by adjuvant chemotherapy and radiation. This can help attack small areas of cancerous tissue (micrometastases) that remain after surgery, and can help prevent HCC recurrence (which occurs in 25% of cases). Combination therapy (e.g., PEI plus TACE) may also be used in people for whom surgery is not appropriate. In some cases, a complete liver removal and transplant may be done, although this procedure is limited by the shortage of donor livers, long waits, and the inability to use immunosuppressive drugs in people with advanced liver disease.

### Conclusion

Although liver cancer incidence is increasing as people infected with HCV many years ago begin to develop liver damage, better HCV drugs hold the promise of keeping liver cancer in check. It may be possible to prevent HCC by slowing or stopping the rate of liver disease progression. Research suggests that even if hepatitis C treatment does not reduce HCV RNA viral load to an undetectable level, it may still protect the liver from damage. HCC remains difficult to treat, but careful screening can help doctors detect the disease at an earlier, more treatable stage. Tell your doctor if you develop any new or unusual pain, swelling, or lumps in the abdomen. If you have chronic hepatitis – or cirrhosis due to any cause - get regular blood AFP tests. Some experts also recommend periodic ultrasound scans of the liver. If AFP levels are elevated or ultrasound reveals a lump, a liver biopsy can be done to diagnose liver cancer when it's small and easiest to remove or treat. After treatment, it is important to monitor the health of the liver to detect any recurrences of the cancer.

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## Optimistic

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they serve. It is clear that we are all in this together.

\*Your BMI is calculated with this formula: Multiply your weight (in pounds) by 704.5. Multiply your height (in inches) by your height (in inches). Divide the first result by the second. Example: If you're 5'5" and weigh 140:  $140 \times 704.5 = 98,630$ ;  $65 \times 65 = 4,225$ ;  $98,630$  divided by  $4,225 = 23$  The higher your BMI, the greater your risk.

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## Women And Hep C

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rapidly as men. Some experts believe that the female hormone estrogen protects women from liver damage.

Many people with HCV have no symptoms and lead normal lives. Those who develop symptoms may experience prolonged fatigue (tiredness), fever, headache, loss of appetite, nausea, pain in the abdomen, or pain in the muscles or joints. The types of symptoms are similar in women and men, but women may develop symptoms later or may experience more mild effects.

Several autoimmune conditions, in which the immune system attacks the body's own tissue, are associated with HCV. Because women are more likely than men to have autoimmune conditions, it is not surprising that women with HCV seem to be at greater risk than HCV-infected men for developing these conditions.

This article will be continued in the January edition of the HCV Advocate. You may read the article in its entirety at:

[www.hcvadvocate.org](http://www.hcvadvocate.org)

## **Clinical Trials**

### ***National Trials***

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