In an effort to increase the success of surgery for patients with early-stage liver primary cancer, the Dumont-UCLA Liver Cancer Center is working to redefine the process for determining the best candidates for resection or transplantation. Doing so would have a dramatic effect on the survival rate for patients with the disease.

Most hepatocellular carcinoma (HCC) patients are not good candidates for surgery. As a consequence, the mean survival rate for HCC, the most common form of primary liver cancer, is six-to-20 months. Yet for those who are good candidates, timely surgical intervention offers the best chance for long-term survival, and the percentage of patients surviving five years can be as high as 80 percent.

In addition, physicians in the center, under the direction of Ronald W. Busuttil, MD, PhD,
UCLA Clinical Updates
Learn about the Latest Advances from UCLA

Pediatric Liver Transplant Program
UCLA has one of the largest and oldest pediatric liver transplant programs in the United States, having performed almost 1,000 transplants. Its post-transplantation protocol involves highly individualized medical management and supportive services.

Pediatric Gastroenterology
UCLA researchers in pediatric gastroenterology are pursuing advances in personalized medicine. With a focus on mechanisms of disease, they hope to better understand these disorders and begin developing novel approaches to treat them.

Sleep Disorders Center
Poor or interrupted sleep is associated with obesity, diabetes, cardiovascular disease, psychiatic illness and injuries due to accidents. UCLA’s Sleep Disorders Center is a comprehensive program with a sleep laboratory and sleep specialists to address all sleep conditions.

Pediatric Bone Program
UCLA offers biochemical analysis, genetic testing, imaging and bone biopsy in the diagnosis and management of bone disease. The UCLA clinic also provides patient education on bone health, including ways to improve bone quality by increasing muscle strength.

Polycystic Ovarian Syndrome
UCLA physicians are studying the effects of excess androgen in women with polycystic ovarian syndrome. Researchers hope to determine if androgen excess can explain not only ovarian dysfunction, but also lipid and cholesterol issues and sugar metabolism irregularities in these patients.

Children’s Heart Center
As the outpatient hub for the UCLA pediatric and congenital heart programs, the Children’s Heart Center provides care for patients from prenatal care through adolescence.

Pediatric Kidney Transplant Program
UCLA’s Pediatric Kidney Transplant Program consistently leads the nation in both volume and survival rates. Research projects to optimize kidney transplant outcomes include ways to reduce immunosuppressive nonadherence among children and teens.

Infantile Spasms
Infantile spasms is characterized by clusters of often subtle seizures that each last just a few seconds. This high-stakes disorder can cause irreversible devastation in as little as a month.

Reducing Radiation Exposure in Pediatric Ablations
UCLA physicians have been leading the way in performing fluoroless ablations aimed at improving long-term outcomes in children with abnormal heart rhythms by avoiding exposure to X-ray radiation.

Obesity Research and Treatment
UCLA’s Center for Obesity and Metabolic Health is committed to improving the success rates of obesity therapies through a unique evidence-based program incorporating treatment and translational research.

To download these and other clinical advances at UCLA Health, go to: uclahealth.org/clinicalupdates

News from UCLA Health

Protein in “good cholesterol” may be important to treating pulmonary hypertension
A new UCLA study demonstrates that a peptide mimicking part of the main protein in high-density lipoprotein (HDL) may help reduce the production of oxidized lipids in pulmonary hypertension.

uclahealth.org/hdlpulmonaryhypertension

Study identifies protein that helps prevent active tuberculosis in infected patients
A UCLA-led study has identified a protein, interleukin-32, that appears to play a key role in protecting people infected with mycobacterium tuberculosis — the bacterium that causes tuberculosis — from developing the active form of the disease.

uclahealth.org/proteintuberculosis

PTSD can develop even without memory of the trauma, psychologists report
Adults can develop symptoms of post-traumatic stress disorder even if they have no explicit memory of an early childhood trauma, according to research by UCLA psychologists. The research suggests that explicit memory — which can be voluntarily recalled from prior experience and articulated — may not be a requirement for PTSD.

uclahealth.org/ptsdearlytrauma
Comprehensive Approach Needed to Treat Liver Disease

Because liver disease is so complex, it is in the best interests of patients to be referred to a comprehensive center where they will have access to the full spectrum of treatments, from transplantation to nonsurgical therapies.

Such centers have the expertise and experience necessary to address the broad range of patient acuity, notes Fady M. Kaldas, MD, an assistant professor of surgery at the Dumont-UCLA Transplant Center, which is part of UCLA’s Pfleger Liver Institute, and director of the liver-transplant service.

The Pfleger Liver Institute team includes surgeons, hepatologists, radiation oncologists, radiologists, liver-oncology specialists, gastroenterologists, pathologists, cardiologists, pulmonologists, psychiatrists, social workers and nutritionists. “We are unique because we can offer both liver transplantation and the hepatobiliary and resection component with the highest levels of sophistication and expertise,” Dr. Kaldas says.

The institute’s team meets to evaluate each case and works together to control the tumor and determine if patients will benefit from resection, transplantation or other interventional approaches such as ablation therapy. Dr. Kaldas notes that benign indications that may warrant referral for potential liver resection include cysts, benign tumors causing symptoms, and congenital malformations. The team performs both open and laparoscopic surgical resections. In addition, Dr. Kaldas says, “For patients who may be candidates for transplantation, we are able to be aggressive in our approach to liver resections and hepatobiliary surgery, knowing we have the option of transplantation as a backup.”

The most common indications for transplantation are cirrhosis leading to end-stage liver disease and primary liver cancer that is not resectable and meets the criteria for transplant candidacy. Dr. Kaldas recommends prompt referral of patients with any evidence of decompensated liver disease and patients with a score of 15 or higher on the Model for End-Stage Liver Disease (MELD), the system for evaluating the severity of chronic liver disease that is used by the United Network for Organ Sharing to prioritize allocation of liver transplants.

But even for patients who have a MELD score lower than 15, along with gastrointestinal bleeding or other symptoms not reflected in the score, early referral is important. “Liver disease is highly unpredictable — patients can have a low MELD score and be doing quite well, then become sick very quickly,” Dr. Kaldas says. “If you wait until the patient has gotten very sick before you begin evaluating him or her, that ends up being time that could have been spent on the transplant list.”

Dr. Kaldas notes that the hepatobiliary program offers all treatment modalities that liver-transplantation candidates might need. The hepatology team is actively engaged in applying new hepatitis C drugs coming on the market, as well as testing existing therapies to optimize patient outcomes. The program is leading clinical trials aimed at determining the ideal combinations of immunosuppressive drugs to minimize kidney toxicity.

UCLA has decades of experience in liver transplantation and hepatobiliary surgery for adults and children, having performed more than 7,000 transplants and resections in the last 30 years under the direction of Ronald W. Busuttil, founder of the UCLA Liver Transplant Program. Due to its level of experience and expertise, the UCLA program evaluates some of the sickest liver-disease patients. “Liver transplantation and resection can be extraordinarily challenging operations,” Dr. Kaldas says. “There is no question that the level of multidisciplinary expertise and experience of a center makes all the difference not only in how well patients do, but in some cases whether they get transplanted or resected at all.”
Chair of surgery and founder of the UCLA Liver Transplant Program, are engaged in efforts to bring promising new adjuvant therapies to the bedside and develop more effective nonsurgical treatments for liver cancer.

The incidence of liver cancer is on the rise in the United States, driven in part by soaring rates of nonalcoholic fatty liver disease (NAFLD), a rapidly growing cause of cirrhosis. Most HCC cases are seen in patients with cirrhosis, which can also result from alcoholic liver disease and chronic hepatitis B and C infections, as well as hereditary factors such as hemochromatosis.

HCC is a particular problem in Los Angeles, which has a high incidence of hepatitis B and C, as well as high rates of NAFLD from individuals with metabolic syndrome.

“If we had enough donor organs, we would perform liver transplants on many of these patients, because that is the best treatment for liver cancer,” says Dr. Busuttil, whose Dumont-UCLA Liver Cancer Center’s multidisciplinary team also staffs the Dumont-UCLA Liver Transplant Center. In addition to transplantation,
UCLA has performed approximately 1,500 liver resections to remove part of the liver for patients in whom the disease is not so severe that they will go into postsurgical liver failure.

For patients who are not candidates for surgery, the Dumont-UCLA Liver Cancer Center team has worked with non-surgical colleagues to develop new approaches, including radiofrequency ablation and transarterial chemoembolization to shrink the tumor and alcohol ablation for the smallest tumors. In addition, a newer technique known as radioembolization using yttrium-90 is now available at UCLA.

The center is also paving the way for a new approach to predicting which patients will have the best chance of survival with a liver transplant. “We’re moving away from solely relying on the size and number of tumors,” explains Dr. Busuttil. “Increasingly, we are looking at the aspects of the tumor biology, including genetic profiling, that indicate how aggressive the tumor is. Patients who have a large tumor that is encapsulated may do great when you take it out, whereas others may have much smaller tumors but show lymphovascular invasion, and they don’t do as well.”

UCLA is also the lead institution in a 22-center, $10-million trial of sorafenib, the only drug that has been successful in treating HCC, as an adjuvant therapy after transplantation. The Phase 2 randomized, placebo-controlled trial will enroll 200 patients to determine whether the drug, already an approved treatment for unresectable HCC, improves survival in patients who receive a transplant. “If this is successful, it would be a monumental breakthrough that will save lives,” Dr. Busuttil says. “We are very excited to be the lead center studying this.”

As liver cancer increasingly becomes an indication for transplantation, an active program to manage patients with end-stage disease while they await their transplant becomes all the more important, says Richard Finn, MD, an associate professor of medicine and a hematologist/oncologist at the Dumont-UCLA Liver Cancer Center. This has led to a strong emphasis over the last decade on building a multidisciplinary program focused on liver cancer, including a robust surgical and interventional radiology program for patients with early-stage disease, as well as laboratory research leading to clinical trials of new therapies targeted at the individual patient’s tumor, Dr. Finn explains.

He notes that while traditional chemotherapy has not been effective in treating HCC, new molecular-targeted therapeutics show promise. The Dumont-UCLA Liver Cancer Center has an open clinical trial evaluating lenvatinib, a drug that blocks several important proteins in liver-cancer cells, in patients with newly diagnosed HCC. Other studies are looking at drugs targeted at specific protein alterations in tumors for patients who fail to respond to first-line treatments. “Our goal is to have research options for the vast majority of patients we see, and we have built a program focused on that,” says Dr. Finn.

All cases are discussed thoroughly at meetings of the hepatobiliary tumor board. “Liver cancer is complicated because of the interplay between the cirrhosis and the malignancy,” Dr. Finn explains. “Both have to be managed, and that’s why it’s important for patients to be seen at a highly specialized center with extensive expertise and all treatment options.”

Dr. Finn notes that early referral leaves patients with more treatment options: Patients whose liver disease has advanced too much from their cirrhosis may have difficulty tolerating available treatments. Moreover, with the expansion of indications for transplantation, patients with small tumors are now given high priority.

“A greater awareness of chronic liver disease and the expanded use of transplantation for patients with liver cancer have helped to improve outcomes,” says Dr. Finn. “We need to continue to make the community aware that patients who have cirrhosis are at risk for HCC and should undergo regular ultrasound exams to look for liver cancer — and that once they are diagnosed, if not before, they should be referred to a place such as UCLA that has a comprehensive program with surgical and medical expertise.”
New antiviral medications are changing the outlook for the estimated 3.2 million Americans, most of them age 50 or older, who are infected with hepatitis C. No vaccine exists to prevent infection and, until now, treatment for this chronic blood-borne infection has been extremely difficult due to harsh side effects. Sammy Saab, MD, MPH, a professor of medicine and surgery in UCLA’s Division of Digestive Diseases, discusses the rapidly evolving treatment protocol.

How were chronic hepatitis C patients treated prior to the approval of the new antiviral medication?

The previous standard of care included interferon given by an injection once a week, ribavirin twice a day along with a tablet that was either boceprevir or telaprevir taken three times a day. Treatment duration ranged from 24 to 48 weeks. The precise treatment protocols varied depending on which of the six hepatitis C genotypes the patient was infected. But many patients did not want to be treated because the side-effects — severe anemia, fatigue, rashes and depression — could be worse than the disease itself. Patients were cured, but the side effects were so bad that, across the country, most physicians stopped treating hepatitis C.

The U.S. Food and Drug Administration approved sofosbuvir in 2013 for treatment of hepatitis C. How is this medication different?

Sofosbuvir is a pill taken once a day in combination with other medications. Insurance companies are determining how to cover the new treatments; currently, patients generally need to have some degree of liver damage before insurance approves the medication.
in combination with other medications is much shorter (12 to 24 weeks), the cure rate is significantly higher and the adverse effects, such as fatigue, headache and nausea, are less severe. Sofosbuvir is part of a new class of drugs called direct-action agents. These drugs prevent the virus from replicating. Whereas interferon and ribavirin were shotgun approaches that targeted the immune system, sofosbuvir targets the virus specifically. And it works within weeks — generally from two to four weeks for the viral level to become undetectable. There are very few people for whom it is not effective.

But it’s expensive. Is cost an issue for patients? Insurance companies are working this out. We are seeing new restrictions on the drug’s use. Because so many more people are eligible for therapy today and more people want to be treated, that has caused a strain on health insurers due to the high price of the medication, which is about $100,000 for a 12-week course of treatment. Insurance companies have created minimal criteria that patients must meet for insurance to cover the cost of the medication. Generally, patients need to have some degree of liver damage before the insurance approves the medication.

What additional new advances are ahead? Sofosbuvir was approved to use in combination with interferon and/or ribavirin, but soon we will be able to use sofosbuvir with a new medication called ledipasvir. The treatment will be a single tablet containing both the medications sofosbuvir and ledipasvir. It’s a huge advantage and a major breakthrough. This will be a non-interferon-based regimen for the treatment and cure of hepatitis C. This drug really meets a lot of unmet needs. It’s been shown to work in a variety of patients who did not respond to previous treatments: in people of all racial groups, people with advanced cirrhosis and people with HIV and hepatitis C co-infection.

Could other antivirals become available for the treatment of chronic hepatitis C? Sofosbuvir is one piece of the puzzle. Other companies will have drugs on the market in the next three to six months that are also exciting. Should patients opt for treatment now or wait for newer medications to emerge?

It’s a discussion people need to have with their doctors. Most patients are very excited about the new medication. Some people have had chronic infection for 20 to 30 years and have been waiting for a new medication to become available, and now they have something. It’s a new era in treatment for hepatitis C. Not many chronic diseases can be cured. Here you have a disease that can lead to cirrhosis, liver failure and liver cancer that now can be easily diagnosed with a blood test and easily treated.

The U.S. Centers for Disease Control and Prevention recommends all baby boomers get tested for hepatitis C infection. Why is that sound advice?

Seventy percent of all hepatitis C is found in baby boomers. Most people with hepatitis C infection don’t have any symptoms and are not even aware they’re infected. These are the patients who have had hepatitis C for a long time — enough time to cause serious liver damage and advanced disease. Patients have a 20 percent chance of cirrhosis after 20 to 30 years. Now we have an effective medication that can prevent many of these liver complications. But even if patients decline therapy, they need to be advised of the need to be screened for liver cancer and avoid alcohol and tobacco.

“...It’s a new era in treatment for hepatitis C. Not many chronic diseases can be cured. Here you have a disease that can lead to cirrhosis, liver failure and liver cancer that now can be easily diagnosed with a blood test and easily treated.”
While nonalcoholic fatty liver disease does not on its own progress to cirrhosis, for a subset of patients the fat progresses with inflammation, which can lead to cirrhosis and an increased risk of hepatocellular carcinoma.

The epidemic of metabolic syndrome in the United States is having major implications on liver disease and transplantation, experts at UCLA’s Pfleger Liver Institute say. Most alarming is the rapid rise in the incidence of nonalcoholic steatohepatitis (NASH). NASH is a manifestation of nonalcoholic fatty liver disease (NAFLD) in which inflammation develops and leads to cirrhosis and an increased risk of hepatocellular carcinoma.

“NASH wasn’t even a diagnosis in our database prior to 2005, and today it is on the way to becoming the No. 1 indication for liver transplantation,” says UCLA transplant surgeon Vatche Agopian, MD. “With the epidemics of obesity, diabetes, and the metabolic syndrome in this country, the rate at which NASH is increasing is frightening.”

In 2012, Dr. Agopian and colleagues completed a retrospective study of UCLA’s liver-transplantation experience from 2002 to 2012, and found a dramatic increase in the incidence of NASH as an indication for liver transplantation, up from about 3 percent to 20 percent over the course of a decade. That made NASH the second-leading indication for transplant at UCLA, behind hepatitis C. With improved treatments expected to stabilize or reduce the incidence of hepatitis C-related transplantation, “everyone agrees that NASH will be the leading indication for liver transplant in this country in the next 20 years,” Dr. Agopian says. The results of his team’s study were published in the *Annals of Surgery* in October 2012.

The percentage of the U.S. population with some form of NAFLD — fat deposition in the liver — is estimated to be as high as 25-to-30 percent. On its own, fatty liver disease does not progress to cirrhosis, explains UCLA gastroenterologist Francisco Durazo, MD. But in a subset of these patients, the fat progresses with inflammation, which can lead to cirrhosis and liver cancer. While much remains to be learned about what triggers NASH in individuals with nonalcoholic fatty liver, the rise in both NAFLD and NASH is clearly tied to the epidemic of obesity, diabetes, hypertension and hyperlipidemia. “NASH represents the liver manifestation of the metabolic syndrome,” Dr. Agopian says. He notes that with the large number of obese children and high prevalence of fructose in the diet, adolescents are increasingly presenting with NAFLD, NASH and in a small fraction resultant end-stage liver disease, something that was once unheard of in young patients.

NASH is expected to strain the liver-transplantation field in the future, Dr. Agopian says. The UCLA experience shows that while carefully selected patients with NASH who undergo transplantation do as well as non-NASH transplant patients, they tax resources through longer operative times and longer post-transplant hospitalization. Moreover, the NASH epidemic is likely to mean more patients being listed for transplantation at a time when the number of donor organs is stagnant, likely increasing the national waiting list which is currently about 17,000.

Exacerbating matters is the growing tendency for NAFLD and NASH to diminish the quality of the liver in organ donors, rendering them less than optimal or unusable. UCLA has the world’s largest reported single-institution experience with liver transplantation, which was recently published in the *Annals of Surgery*. Dr. Agopian and Ronald W. Busuttil, MD, PhD, founding chief of the UCLA transplant program, document the declining quality of donor organs over the past 30 years, particularly in the last decade. “We are seeing 25-year-old donors whose organs have to be turned down,” Dr. Agopian says.

He says that physicians should recognize that medical comorbidities such as diabetes, hypertension, hyperlipidemia and obesity are highly correlated with fatty liver disease, and consider referring them to a medical hepatologist if there is strong suspicion of NASH. Particularly ominous are recent reports of patients with NASH developing liver cancer in the absence of cirrhosis. “Community physicians know to regularly screen
their cirrhotic patients for cancer, but it’s less widely known that patients with NASH, even if they haven’t progressed to cirrhosis, can develop liver cancer,” Dr. Agopian says. “We need to consider screening for hepatocellular carcinoma those patients who have either biopsy-proven or clinically suspected NASH even before they have reached the point of cirrhosis.”

NAFLD and NASH typically produce no symptoms; fatty liver is usually diagnosed as an incidental finding, Dr. Durazo notes, and the only way to diagnose NASH is with a biopsy. Dr. Durazo’s criteria for ordering a biopsy include multiple components of the metabolic syndrome and an NAFLD fibrosis score, determined by a formula using simple laboratory tests, suggesting significant fibrosis. “Some of these patients will already have cirrhosis and will need to be screened for hepatocellular carcinoma every six months because of their risk for liver cancer,” Dr. Durazo says.

The best treatment for NASH is tight control of the diseases of the metabolic syndrome, which means aggressive management of hypertension, cholesterol and diabetes, as well as lifestyle modifications related to diet and exercise. Dr. Durazo counsels patients to avoid simple carbohydrates, saturated fats and fructose-sweetened drinks, and to follow the Mediterranean diet. For severe cases — generally, patients with a body mass index of 40 or higher and other comorbidities — bariatric surgery may be indicated. Multiple studies have also shown the benefits of exercise. Many drug trials have been conducted, but data on effective NASH medications remain limited, Dr. Durazo says. Some evidence indicates that vitamin E helps to decrease inflammation and fibrosis in about 40 percent of NASH patients; in patients with significant biopsy-proven NASH, he often recommends 800 IU a day. Metformin, used to treat insulin resistance, has shown some benefits, and recent pilot studies of new medications have been promising. “In general, we are waiting for pharmacotherapy to improve the treatment of NASH, as well as tests that will tell us which patients have NASH and aggressive disease so that we don’t have to use liver biopsy to make the diagnosis,” Dr. Durazo says. “NASH is a growing problem that will demand increased attention and resources.”

“With the epidemics of obesity, diabetes, and the metabolic syndrome in this country, the rate at which NASH is increasing is frightening.”
Acetaminophen overdose — intentional and unintentional — has become the most common cause of acute liver failure in the United States.

The most common supplement-induced liver injuries result from workout or bodybuilding supplements, with weight-loss supplements not far behind. Patients who present with hepatotoxicity from supplements typically experience nausea, vomiting, abdominal pain and fatigue, along with elevated liver-function tests.

Nutritional Supplements and Pain Relievers Contribute to Growing Incidence of Hepatotoxicity

The liver’s ability to clear toxic chemicals that are ingested in the human body is being taxed by a society increasingly interested in consuming nutritional supplements. The overuse of such supplements is contributing to a growing number of patients who are presenting with acute hepatotoxicity, say experts at UCLA’s Pfleger Liver Institute.

This development, along with the continuing problem of acetaminophen overdose, underscores how important it is for community physicians to be aware of the nonprescription products their patients are taking and to counsel them on the potential dangers of their misuse.

Acetaminophen overdose has become the most common cause of acute liver failure in the United States. While initial attention, particularly in Europe, centered on the drug’s use as a suicide agent, the focus now has shifted to the problem of unintentional overdose — so-called therapeutic misadventures. “A patient goes to the dentist, has a lot of pain, starts taking acetaminophen like candy and develops toxicity that is potentially fatal without a liver transplant,” explains UCLA gastroenterologist Francisco Durazo, MD.

Dr. Durazo says patients need to be advised not only of the potential harmful effects of taking too much of the ubiquitous pain reliever but also the presence of acetaminophen in other medications they may be taking, from analgesics to cold remedies. They should also be warned of factors that will predispose them to increased acetaminophen toxicity, including heavy alcohol use, fasting and medications that speed up the metabolism.
Nutritional supplements now are cause for similar concern. More than half of Americans take supplements, Dr. Durazo notes, and consumption of herbal medications has increased fivefold in the last decade. More than $35 billion is spent yearly in the United States on weight-loss products. “We’re now starting to see the side effects,” he says. Dr. Durazo is the principal investigator at UCLA for the Drug Induced Liver Injury Network (DILIN), which has collected and analyzed more than 1,000 cases of severe liver injury caused by prescription and over-the-counter drugs, herbal products and supplements. He says the most common supplement-induced liver injuries result from workout or bodybuilding supplements, with weight-loss supplements not far behind. Less common but still important to be aware of, he adds, are injuries from consuming large quantities of popular energy drinks.

The vast public interest in improved performance — be it from workout-enhancing supplements, weight-loss pills or energy-boosting drinks — is compounded by misleading advertising and labeling, contends UCLA transplant surgeon Fady M. Kaldas, MD, director of the liver-transplant service at the Dumont-UCLA Transplant Center. “There is a big market for people who want to move away from Western medicine and buy something that’s herbal or ‘natural,’” Dr. Kaldas says. “A lot of people think that it has to be good for them if it’s natural.”

The problem, he points out, is that the supplement industry is not regulated by the U.S. Food and Drug Administration, and products typically don’t need to show evidence of safety or efficacy to be sold. In some cases, Pfleger Liver Institute doctors note, popular weight-loss supplements have been removed from the market after reports of adverse events, only to return as rebranded products with similar ingredients.

Patients who present with hepatotoxicity from supplements typically experience nausea, vomiting, abdominal pain and fatigue, along with elevated liver-function tests (LFTs), explains UCLA surgeon Keri E. Lunsford, MD, PhD. “When community physicians see an elevation in LFTs in their patients, they need to question them about their use of these supplements, which is something that patients often overlook,” she says.

Patients may assume their physician wants to know only about the prescription medications they are taking and neglect to volunteer that they also are taking supplements, Dr. Lunsford says. And many doctors don’t ask, “assuming that a supplement is like a multivitamin and not a big deal. So it is important for physicians to be proactive — both in asking the questions and in looking up these agents and warning their patients about potential adverse effects,” she says.

“When you have a patient with a history of consuming these products, it’s important to keep in mind that regardless of how healthy the patient looks, things can turn bad very quickly,” Dr. Kaldas adds. “There needs to be a heightened degree of vigilance and a heightened index of suspicion, particularly about these vague entities that we know little about but can be very toxic.”

Liver histology on left shows normal cellular pattern. Histology on right shows extensive damage as a consequence of supplement use for weight loss, with a near complete absence of liver cells and red blood cell congestion accumulating in the collapsed liver stroma.

“A patient goes to the dentist, has a lot of pain, starts taking acetaminophen like candy and develops toxicity that is potentially fatal without a liver transplant.”
Continuing Medical Education: Save the Date

8th Annual UCLA Liver Diseases Symposium
30th Anniversary of Liver Transplantation at UCLA

When: November 1, 2014
What: This symposium will serve as an educational forum for the Southern California physician community for the scientific exchange of information regarding the diagnosis and treatment of the most prevalent liver diseases.
Where: Tamkin Auditorium, Ronald Reagan UCLA Medical Center, 757 Westwood Plaza, Los Angeles, California
Cost: $100 physicians; $50 allied health professionals; Free, fellows and residents
Register: Go to www.cme.ucla.edu/courses and select “8th Annual UCLA Liver Diseases Symposium”