

# *Cystinuria Support Network News*

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**The *Cystinuria Support Network*, a Non-Profit Mutual-Aid Support Network, has been developed to provide a resource for putting individuals in touch with each other for support and practical advice. Since no one can understand the issues like those who are sharing the same experience, this Network will allow us to come together with our strengths, hopes and concerns to offer support and understanding to each other.**

**The *Cystinuria Support Network* in no way endorses any drug or treatment that is reported herein and should not be regarded as a substitute for personal, professional medical advice. It is our wish only to provide information and encourage you to always check any treatment with your physician.**

## **From the Editor**

I would like to start out this newsletter with a *very sincere apology* to all of you who took time out of your busy schedules to write articles for this newsletter....many months ago. I had intended to get this newsletter printed last spring and regret that it has taken so long. Since the birth of my second child (who *does not* have Cystinuria!) 19 months ago, it has been extremely difficult for me to find enough time to make this network what I would like it to be. I am publishing all articles as they were when they were sent to me. Unfortunately, I received many of them almost a year ago and some information may not be the most current.

As I mentioned, with two small children and a full time job, I am finding it hard to find the time that I need to devote to the network to see it become what I think it could be. I have had many people offer to help and have tried to determine what would be the best way to use that help. Since we are scattered all over the country (and world) it is difficult to coordinate any activities. A couple of people have offered to design a logo for the Cystinuria Support Network. Others have offered to find someone to write an article about a subject they would like to know more about. Several people have talked to their doctors about writing for the newsletter. People have offered to design a web page and to do fund raising for CSN. These things would all be a big help to me. I would like to ask anyone who is willing, to find some way they can help the network. One idea I had: I would love to put together some kind of welcoming committee! Since my original goal with this network was to put people in touch with each other for support, I am distressed to hear from a few people that they have written to a number of the people on the list and no one has responded. A welcoming committee of some sort would guarantee at least one phone call to a new member!

Do you like to organize activities? Many people have told me that they would love the opportunity to meet with other cystinurics. Since we are spread out all over the country, it is hard to plan a gathering of the whole group. But I think anyone who is motivated could put together a regional gathering and find it to be pretty well attended by the local CSN members. This is something that I cannot even begin to take on myself, but if you are interested in planning such an event, contact others in your area and put something together, big or small. If you do so, please let me know

about it and how it went so that I can share your experience with the others via the next newsletter.

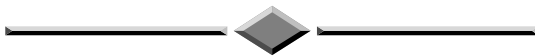
There are many participants in the Cystinuria Support Network who are now on-line. This has proven to be a great way to "network" with other cystinurics. If you are on-line, send me your email address if I don't already have it. Almost all of the new people I hear from these days are people who have found out about CSN via the Internet.

The #1 question most frequently asked when people contact me is "what role does diet/nutrition play in the treatment of Cystinuria?" Do you know a medical professional that might be willing to write about this subject for the next newsletter?

I have written many, many letters to researchers and doctors, trying to get information for the newsletter. I did a mailing last spring to everyone who was in the network at that point asking for their personal stories to share with others via the newsletter. You will read the stories of those who responded in this issue. I will continue to publish a newsletter as often as I have information to justify publishing but I cannot do it all alone.

***Be an active participant in The Cystinuria Support Network and you will help yourself and others. Remember...this is your network!!!***

Jann L.



## Surgical Management of Upper Urinary Tract Calculi: The Decreasing Role of ESWL

Written by Michael Grasso, M.D.  
Associate Professor of Urology  
NYU Medical Center, New York

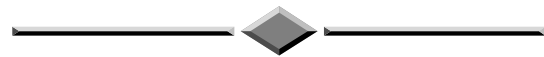
In 1996 there are many modalities available to treat upper urinary tract calculi. It is the mission of the American Urologic Association Nephrolithiases Guidelines Panel to develop guidelines for treating upper urinary tract calculi. The first task of this group was to address current treatment of large, staghorn stone burdens. By reviewing the literature en-toto, this non-biased body of the American Urologic Association set guidelines that are now currently in place.

In regards to large stone burdens, that is calculi greater than 2.5 cm in greatest diameter, the governing body felt rather strongly that open surgical intervention--that is, making a large incision to remove a stone--should be strictly prohibited with very few exceptions. Additionally, the feeling was that ESWL (Extracorporeal Shock Wave Lithotripsy) does have a role for the moderately-sized renal calculi. The Guidelines Panel felt strongly, however, that stone burdens greater than 2.5 cm, or those in complex collecting systems, should be treated endoscopically. Percutaneous nephrostolithotomy (placing a tube into the kidney through the skin to fragment and evacuate the stone material) was felt to be the primary treatment for staghorn stones.

The Guidelines Panel also felt rather strongly that a course of watchful waiting for large stone burdens was not acceptable. Additionally, renal function should be assessed prior to treatment. Kidneys with very little recoverable function (less than five to ten percent of total renal function)

may be best treated with a primary nephrectomy, depending on other clinical variables including the renal function on the opposite side.

In summation, the American Urologic Association's Nephrolithiasis Guidelines Panel has set the tone for the 1990's as far as treating large renal calculi. These stones should be treated endoscopically in most cases, with ESWL being a treatment for smaller stone burdens or as an adjunctive therapy in combination with endoscopic debulking and evacuation of stone fragments. Copies of the AUA Guidelines Panel recommendations are available by writing to the following address: American Urological Association, Inc. Health Policy Department, 1120 North Charles Street, Baltimore MD 21201.



## New Concepts in Treating Upper Urinary Tract Calculi Endoscopically Without a Percutaneous Puncture

Written by Michael Grasso, M.D.  
Associate Professor of Urology  
NYU Medical Center, New York

All ureteral calculi, and in fact many stones throughout the caliceal system, can be accessed and treated in a retrograde fashion with a combination of various fiber optic endoscopes and powerful, precise lithotrites. In the early 1990's improvements in fiber optic imaging and technical advances in endoscope design have allowed endurologists to place small fiberscopes through the urethra, bladder and into the upper urinary tract atraumatically. Various endoscopic lithotrites, including powerful laser lithotriptors, can be employed throughout the working channel of these endoscopes to treat calculi. In 1993 I began work on a small diameter flexible

ureteroscope that measured approximately 2 mm in diameter and allowed access to the entire upper urinary tract. Shortly thereafter, a prospective study was instituted using a new laser energy--the holmium laser. This device is a thermal laser which destabilizes stones into fine dust. The combination of this endoscope and lithotrite was able to clear 75 consecutive calculi in our most recent series. What is very interesting is that with other laser lithotripters, as the probes become smaller and more precise, the deliverable energy and efficiency decreases. This is not the case with the holmium laser.

Prototypic fibers as small as 2/10ths of a millimeter were designed and employed in this most recent series. As opposed to prior, larger fibers, these small fibers do not inhibit the deflectability of the endoscope and as such I'm able to access the entire caliceal system. Initially, I was only treating somewhat straightforward ureteral calculi. Most recently I've addressed a series of larger-branched stones in the caliceal system and I've been able to efficiently clear them.

This particular laser lithotritor fragments all stones equally and efficiently as opposed to other devices including EHL (Electro-Hydraulic Lithotripsy) and the pulse dye laser which are less efficient fragmentors of cystine stones. The holmium laser basically vaporizes or destabilizes cystine stones into a fine powder. It works as efficiently on cystines as it does with other stone compositions.

I've recently treated a series of patients with large-branched calculi who had undergone multiple prior open and percutaneous procedures and now were searching for another modality which would obviate the need for long hospitalization and a percutaneous puncture. Most of these patients had undergone multiple courses of ESWL without success. Many of these patients were cystinurics and were quite frustrated with surgical intervention at this point. An excellent example is that of Ben Lokos who is a 33 year old cystinuric who has been suffering for many years.

Ben had undergone three prior percutaneous nephrostolithotomies on the left side and now is suffering with somewhat severe hypertension which most likely reflects perirenal and cortical scarring. I was able to access Ben's large stone burden in a retrograde fashion and debulk a

significant portion of it. We were also able to move the dust and remaining small fragments into portions of the collecting system that clear more easily after treatment.

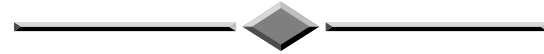
Lower pole stones, that is those that are in a very dependent portion of the kidney, are less apt to clear after ESWL. With endoscopic therapy we can not only vaporize and remove a good portion of the stone, but are also often able to move or irrigate the remaining small fragments into other portions of the collecting system. It is in these other locations that they are more apt to pass easily. In Ben's case, we cleared a significant portion of the stone burden in one sitting. As in most cases, this procedure is performed as an out-patient.

In summary, I think that the aforementioned techniques should be put clearly into perspective. The new equipment and the holmium laser are only in the hands of a minority of endurologists in the country. Also, the application requires a certain skill level and there is no question that there is a learning curve to this technique as there is with most minimally invasive surgical procedures. There are a handful of centers throughout the country where prospective studies are being done with these devices. The potential for a treatment that is done as an out-patient, able to clear large stone burdens—including cystine—efficiently, with minimal morbidity and significant efficiency gives promise to those cystinurics who have had multiple surgical interventions with mixed results.

A list of the following centers where retrograde interrenal surgery is performed with the holmium laser and small-diameter actively deflectable, flexible ureteroscopes:

- **Michael Grasso, M.D.**, Associate Professor of Urology and Director of Stone Treatment and Prevention Center, New York University Medical Center, New York, New York
- **Demetrius Bagley, M.D.**, Professor of Urology and Radiology at Thomas Jefferson University in Philadelphia, Pennsylvania
- **Michael Conlin, M.D.**, Assistant Professor of Urology, Oregon Health Science Center, University of Oregon, Portland, Oregon
- **Joseph Segura, M.D.**, Professor of Urology, Mayo Clinic, Rochester, Minnesota
- **Gerhart Fuchs, M.D.**, Professor of Urology, UCLA Medical Center, Los Angeles, California

- **Kent Kirby, M.D.** at the Cleveland Clinic in Florida.



## Identification of the Gene That Causes Cystinuria

Written by Elon Pras M.D.  
Genetics Section  
Arthritis and Rheumatism Branch  
National Institutes of Health  
Bethesda MD

**This article was submitted in May, 1995.**

In recent years the field of genetics has undergone a major revolution. New laboratory techniques in molecular biology have made it possible to find the genes that cause many of the human genetic diseases. With the use of these fascinating methods, some of which would seem to be on the verge of science fiction, the genes causing diseases that have haunted us for years have now been isolated. Every few weeks we can read in the newspaper about yet another disease gene that has been found. Cystic fibrosis, Huntington's disease, hereditary breast and colon cancers are just a few examples from a long and rapidly expanding list.

This revolution has not skipped Cystinuria. Cystinuria is a relatively common genetic disorder. It is believed that one in 15,000 Americans has this disease. Although it can cause a lot of suffering to the patients, the disease is not lethal in our days, and therefore it receives less attention in the media compared to other genetic disorders.

Efforts to isolate the gene that causes Cystinuria started in animals. About three years ago a gene that encodes a protein responsible for the transport of cystine through the cell membrane was isolated in rats. Later on the same gene was isolated in rabbits. In 1993, two groups, one from the United States and the other from Europe, isolated the human homolog of this gene. The human gene, which received several names including SLC3A1, rBAT, and D2H, is a relatively

small gene of 2280 nucleotides, and was shown to be located on chromosome 2. The protein product of this gene, composed of 665 amino-acids, was found in cells from the kidney and the intestine. These organs are known to be affected in Cystinuria patients.

With this knowledge, our group at the National Institutes of Health, in a collaborative study with a number of centers in Israel, collected 17 families that had at least two children affected with Cystinuria. We were able to show that the gene that causes this disease indeed lies on chromosome 2, on the short arm of that chromosome. Our studies also indicated a high probability that only one gene is involved in Cystinuria, although we could not completely rule out the possibility that other genes on chromosomes 2 or on other chromosomes are also a cause of this disease.

At the same time, a group from Europe found six different mutations in this gene in Cystinuria patients. At this stage it was clear that this is indeed the Cystinuria gene. Since then we have found mutations in the majority of patient samples that we have. Altogether more than ten different mutations were found in the SLC3A1 gene, and there are probably more. In a few patients we didn't find mutations in this gene. There are two possible explanations for this: Sometimes mutations can occur in structures that are very close to the gene but not in the gene itself; we haven't checked these structures yet. Another possibility is that in these patients the mutation is in another gene. Additional studies will be required in order to determine if other genes are also involved in this disease.

The identification of the Cystinuria gene will have important future implications. It will help achieve a better diagnosis in some patients. Taking into account the obvious ethical considerations, it will allow the possibility of prenatal diagnosis in selected cases. Incorporating the gene with a mutation into a mouse embryo would enable to generate an animal model for Cystinuria and to test new modalities of treatment. In the more distant future one could even think of gene therapy for curing Cystinuria.

## Update on Cystinuria Research

Written by John Endsley, M.D.  
Vanderbilt University Medical Center  
Nashville TN

Medical research can be divided into two categories: "basic science" and "clinical" research. The basic science research asks questions about how organisms (like people) and disease processes work, without a specific plan for how to apply that knowledge to treat disease. Clinical research asks questions about how to develop better treatments for patients, sometimes without knowing all the details of why a treatment works. The two approaches feed off of each other, because understanding how a disease works usually leads to better ideas about how to treat it. In the case of cystinuria research, up until fairly recently there has been little new information from basic science research, and slow progress in clinical research. In the past few years, however, a number of breakthroughs have occurred in basic science research in cystinuria, and I will simplify and summarize the most important ones in the remainder of this article. To those with some background in molecular biology this may seem oversimplified.

Cystinuria is an inherited disease, usually transmitted in what is termed "autosomal recessive" fashion. The disease is manifested by a decreased ability of the kidney to reabsorb certain amino acids from the urine as it is being formed. One of the amino acids, cystine, does not dissolve well in urine, and when too much of it is present it may lead to formation of kidney stones. One of the main aims of basic science research in cystinuria has been to identify the gene or genes which causes the disease.

One of the genes has now been identified. In 1992, two groups<sup>1,2</sup> independently isolated (cloned) genes that caused increased transport of cystine when it was expressed in a special type of frog cell (Expression means that the DNA of the gene was injected into the cell and "translated" by



the cell to make a protein. The protein in this case then was inserted into the cell membrane and caused cystine to be taken up by the cell.). One gene was isolated in rat (this gene was called D2), the other in rabbit (this gene was called rBAT). When the DNA sequences of the genes were compared, they were extremely similar to each other. This led to speculation that a similar gene in humans could be one of the genes damaged in patients with cystinuria, and in 1993, a human gene with DNA sequences very similar to the rat and rabbit genes was isolated<sup>3</sup>. The location of this gene was found to be on chromosome 2<sup>4</sup>. The human gene was designated SLC3A1. The protein produced from this gene is usually referred to as rBAT

The next breakthrough came in 1994, when samples from some patients with cystinuria were found to have abnormalities (or "mutations") in the DNA sequences of the SLC3A1 gene<sup>5</sup>. When proteins were produced using these damaged versions of the gene, they were found to have a decreased ability to transport cystine across a cell membrane, which is what one would expect of a gene causing cystinuria. Since then, a number of other investigators have found other abnormalities in this gene in cystinuric patients.

Up until recently, most of the mutations were found by a very labor intensive process which required manipulating the cells obtained from cystinuric patients to make them produce a copy of the gene in a version called "mRNA". This need to process each patient's sample shortly after obtaining it and over a period of weeks had limited the ability of investigators to screen many patients for abnormalities. Recently, however, both our group at Vanderbilt and Dr. Pras<sup>6</sup> in Israel have independently decoded the "genomic structure (the sequence of "introns" and "exons") of the SLC3A1 gene. This should allow more efficient screening of patient samples, since it eliminates the need to manipulate the cells to produce mRNA. Several new mutations have been identified using this technique.

It is currently felt that there are probably other genes involved in causing cystinuria in some patients. Future efforts in basic science research in cystinuria will probably focus on continued exploration of the structure and function of

SLC3A1 and the rBAT protein as well as finding other genes that can cause cystinuria. Ultimately, the hope is that we can design ways to correct the defect by inserting a corrected copy of the gene into the kidney cells of patients and allow them to begin taking up cystine to prevent further kidney stones. Those of us involved in research appreciate those with the disease who have given samples for these studies, and we also understand the frustration you must feel knowing that this progress in basic science may take years to spill over into clinical trials of new therapies. Thank you for your help, and hang in there.

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## The High Cost of Denial

Written by Carolyn Arrington

This is a personal account of my own struggles with cystinuria, and while it is always difficult to recall the traumatic events involving my past medical problems, I hope many other cystinurics can relate to my experiences.

I'd like to tell you I've been courageous in my endurance, vigilant in following doctor's orders, a cooperative, docile patient -- but that is not true. Some of my resistance to initial treatment came from my own emotional difficulties surrounding the particular time of my diagnosis, as well as a myriad of complex factors. Suffice to say, I was a troubled young adult, mainly from unresolved dysfunctional family issues, and the first few small stones occurred in my late teens. Though painful and requiring hospital emergency care, I passed those stones, and the G.P. who treated me did not suspect that those isolated incidents were connected.

After I was married a year or so, I had episodes with larger stones which required hospitalization and one cystoscope. Fortunately, I was under the care of an excellent urologist, and he had laboratory analysis done on a stone, told me I had cystinuria and sent me to a nephrologist.

At this point there occurred an almost fatal mistake on my part, and both the urologist and nephrologist. What happened? In retrospect, I tend to think it was simply a profound lack of open communication, almost a misunderstanding, complicated by my own emotional frustrations, fears, worries which were never addressed at all. The urologist was a talkative, demonstrative individual; he would speak at length about the urological aspect, even showing me small-scale models of the kidneys, etc. I'd become accustomed to his articulate, engaging manner and expected the same treatment by the nephrologist.

But, as I eventually learned, these two specialists were utterly different in their personalities, their medical approach, their go on and on with the medical saga, but I think every cystinuric knows all the various details about major kidney surgeries, the other procedures that helped me survive. It was a long, difficult two years of endless rounds to doctors' offices, medical labs

and occasional hospitalizations. I'd love to tell you I was brave, but I was not; I was a thoroughly depressed, miserable woman.

If I could change one thing about that ordeal, I wish I'd had professional counseling -- not only for my diagnosis of cystinuria, but also for other troubling emotional difficulties that took me many years to resolve. I never met another cystinuric during that time, but the few people I happened upon with kidney stones, either while in the hospital or while in a doctor's office, were suffering so much that it seemed impossible to discuss our medical problems.

Perhaps in an effort to correct his earlier casual attitude about my condition, the nephrologist now gave dire, scary warnings and instructed me to take penicillimine. And I didn't question him; I did what I was told. Frankly, I didn't see I had a choice, and though I was depressed, I did want to live. When I broached the subject of having children, there really was no need for the doctor to say anything: the look on his face said it all. It was not a primary concern for me, therefore I willingly decided against ever having children...something I'm sure many women might not so readily accept.

I attribute my survival now to the penicillamine, which I took for fifteen years; but when side effects occurred, I had to stop it. Looking back, I personally feel that the starvation diet along with overwhelming stress brought about my acute attack when both kidneys were blocked. Prior to that, the early diagnosis apparently gave no indication of cystine levels being high enough to cause such a devastating consequence.

I'd love to end this by saying I always take care of myself, always drink enough water, eat right and see a specialist regularly. But the truth is, while I do much better now at taking care of myself, I am far from the perfect patient; I am always looking for alternative treatments, hoping that a genetic breakthrough will solve the riddle of cystinuria, somehow give us all better prospects for treatment/prevention in the future.

The good news is, though, I no longer DENY being a cystinuric -- because I learned the hard way it is a costly mistake to do so.



## Ben's Story

Written by Ben Lokos

I have been trying to compensate with this disease for 18 years. My first run-in with Cystinuria was on my 16th birthday, while playing golf. My left kidney shut down and the doctors threatened me with open surgery unless I could pass the stones, which I subsequently did.

Eight years later at age 24, I had developed a huge staghorn on the left side that created a blockage to my left kidney. A percutaneous was performed at this time but I needed to stay in the hospital for four more weeks in order to dissolve the 30 smaller stones that remained after the surgery.

Five years later, at 29, I again had developed a staghorn on the left side. This go around it took two percutaneous and one lithotripsy to get rid of all the stone material. This time I was sidelined for only two weeks in the hospital, but I had become very weak.

Four years later, at 33, I again developed a staghorn on the left side but this one was smaller than the other one had been. This time I had a ureteropyloscopy performed which was successful in getting to all the different calyces in the kidney. I also developed a small stone in the right kidney which caused intense pain in the right ureter. This stone passed on its own, followed by another.

Unfortunately, no matter what I seem to do I still develop staghorn stones. However, during the last 17 years I have developed a "learned helplessness attitude" toward this illness. Every time I seem to be slowing down the production of stones, they seem to return. Do any of you feel this way?? I know that some Cystinurics have experienced greater hardships than I have described. Yet let's face it - this is NO PICNIC.

I now treat the condition very seriously as it has also caused me to have extremely high blood

pressure. (180/130) All along I was drinking 1-2 gallons per day, as well as taking 60 mgs of Polycitra-K crystals during the night.

After the last surgery was done, I discovered a natural way to alkalinize my urine, by drinking wheatgrass juice, and chlorophyll. I am also taking d-penicillamine which I gradually adjusted to. My nephrologist (Dr. Zackson) recommended a desensitization schedule until I am able to tolerate a therapeutic dose. The reason for the desensitization to Cupramine is because I am allergic to Thiola and Capotril and developed hives with Cupramine when I originally took it. An allergist recommended taking a tweezer-full at a time for two months until I built up to one pill. After 2 more months I built up to three pills.

In closing, I have discovered that by drinking the wheatgrass juice, I am better able to adjust to alkalinizing the urine and actually derive tons of energy. I know that I will beat this condition and not let it get to me, and I think we all need to maintain a positive attitude!



## Sue's Story

Written by Sue Baker

I am brand new to the world of Cystinuria! A "wonderful" world of stones, WATER and nocturnal voiding. It's great to know when in the middle of the night when I am up drinking my water- that I am not alone!! All of you are out there doing the same thing.

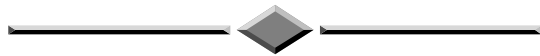
Let me tell you the story of how I became part of this group. I am 43 years old. I was born with this disease, unaware of it until now (guess I've been lucky). I have passed many kidney stones in the past. The doctors weren't too concerned so neither was I. I knew the signs so I just passed them. Up until last year (2/95). I was at work (I'm a special education TA) when I experienced back pain so severe that I took my

first ambulance ride to the hospital. A cat scan revealed that my left kidney had shrunk and appeared not to be functioning. More tests show that I have a large staghorn stone and a "strange" blockage in my ureter. They assumed this was cancer. So now I am facing my first surgery to remove my kidney and also cancer. Don't think I wasn't scared.

The surgery was very painful as a lot of you know. My "cancer" was Cystine!! They saved half of my kidney. My urologist, Dr. Goldman, was a very caring and compassionate man. He also was very excited. I was his first case of cystinuria in his 40 years of practice. He didn't really have too much information for me to read.

I was happy to learn about the support group. I have learned so much more. Up to this point I am not sure if I have any new stones or not. But I am keeping a positive attitude and I, as with the rest of you, KEEP DRINKING!!

I would love to hear from each and every one of you. Let's compare stories.



## Tim's Story

Written by Tim Gode

I am 28, 5' 8", 170 pounds, married four years, baby due November 9, grew up in central Missouri, an engineer. Cystine level - about 600 mg/day. Current status - lots of stones in the right kidney. Most aren't going anywhere. One large stone (1 1/2 cm x 2 1/2 cm) about 1/3 of the way down the right ureter. Stent in place, penicillamine dosage increased to 2000 mg/day, sodium bicarb, B-6, Polycitra and an antibiotic. The doctor's plan is to try to dissolve it first and then try electrohydraulic lithotripsy. I am glad he's not cut-happy.

I found out when I was 18 and (almost) passed my first stone (about 1 cm diameter). First doctor correctly identified the cystinuria. From what I have heard so far, I was lucky to get diagnosed

correctly on the first try. My first urologist seemed to take a scientific interest in the cystinuria. He tested me almost weekly for several months to establish baseline data. I was put on penicillamine, sodium bicarb, and B-6.

When I left college to start my career, I changed to my current urologist. He told me right away that I probably knew more about this than he did. (What an honest doctor!) He encouraged me to experiment with different approaches to controlling the cystine levels.

I tried going off drugs and doing the diet thing but in February '92, two stones ended that experiment. I went back on the drugs and tried reducing the dosage to 250 mg/day. This worked for four years, until my current stone made its presence known. Looks like I'll be going back to 500 mg/day (maybe more) when this stone is gone.

As of Nov. 27, an IVP showed NO STONES WHATSOEVER in either kidney. Here's what did it.

My doctor put me on Polycitra and 2000 mg/day of Penicillamine after installing the stent. It took about 2 months but the drugs not only dissolved the 2 1/2 cm stone but it dissolved everything else too! I'm back to 500 mg/day of Penicillamine and 4 doses of Polycitra (1 tablespoon in about 8 ounces of water) and the vitamin B-6 of course.

Removing the stent was really painful but not having to go under the knife was worth it. We never had to go to the lithotripsy! I'd recommend this treatment to anybody who can tolerate the Penicillamine



## Clarity's Story

Written by Joan Miller

My daughter Clarity was diagnosed with cystinuria in May of 1995. X-rays revealed that her kidneys were about three-quarters filled with

stones. It was the most severe stones that the doctors at Virginia Mason Hospital in Seattle had seen, especially on someone so young. The kidney tissue itself had been reduced by half, but her kidneys were still functioning fairly well.

She had two percutaneous ultrasonic lithotripsies. The surgeries lasted between four and five hours a piece. On the left side they were able to remove most of the stones from all but one lobe of the kidney and from the right side all but two lobes.

Caring for her in the hospital and for the weeks after we got home was the most difficult for me. She had drainage tubes and bags for each kidney that needed a great deal of attention and were extremely uncomfortable. The pain medication made her nauseated and drowsy. As a teenager it was embarrassing for her to be seen with all the apparatus.

At home we tried irrigating her kidneys for ten hours each night with a sodium bicarbonate solution dripped through the nephrostomy tubes. This was difficult for her as she had to get up very often and wheel the IV pole, bags, tubes, etc to the bathroom. It was stressful for me because I had to keep getting up every two hours to check that the solution was dripping at the right rate. We did it for a week and it made no difference.

She returned to the hospital to go in the lithotripter, but this was ineffective on her hard stones. Later they did another PUL and were able to get most of the stones out of her left kidney.

As of April of '96, Clarity has had good results in managing her cystinuria. Her stones are dissolving and no new ones are forming. She follows a complete vegetarian diet with very small amounts of dairy products. This is our diet of choice anyway, so eating a low protein diet is easy for her. She eats very little fat. She uses Polycitra crystals in water once a day. The sodium in the other preparations was making her retain water, and I didn't like the sugar and dyes. She eats a lot of fresh fruits and vegetables; we prepare most foods from scratch at home.

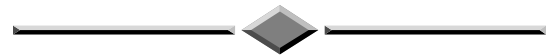
We no longer use our well water but buy bottled water. To the water I add a solution called "Crystal Energy", a super-concentrated electrocatalytic mineral solution. It reduces the surface tension of the water, making it a better

solvent so that nutrients can be absorbed more fully by the body's cells. Though I have no clinical proof, it seems to me that this would be useful for her kidneys. She drinks between 8 and 12 glasses of water a day.

Clarity's doctor is becoming familiar with the holmium laser and plans to use it on the rest of the stones sometime in the next year. These surgeries will hopefully be able to be done through her bladder and ureters instead of percutaneously.

Although it hasn't been easy to cope with Cystinuria, I am encouraged that the program Clarity is following has been effective.

Joan Miller  
340 No Name Road, Anacortes WA 98221  
360-293-7042



## Just Call Me Rocky

Written by Brenda Jacobs

The first 20 years of my life was a breeze. At age 20 my life was completely turned around by giving birth to my first child and discovering that I had Cystinuria. Life suddenly became very painful and my once peaceful existence turned into a nightmare. None of the doctors where I live had ever treated a cystine stone producer. They didn't know what to expect or how to help. I suffered for many years on special diets and large amounts of sodium bicarbonate. My condition only worsened. I have had all types of surgery and none of it works very well, because in the end the rocks always return to hurt another day.

Over the years I have researched this disease as much as I could. I wrote to most of the big teaching hospitals in the United States and luckily some of the doctors wrote back or called me in person. All of them seemed to be guessing about treatments and they all wished me well. I am not

one to give up easily so I wrote to Dr. Charles Pak in Dallas, Texas. It took two letters but finally one day I received a call from his research assistant, Dr. Lisa Ruml. What can I say; she was wonderful. We talked several times and I decided to fly to Texas to become part of their research. I had never flown before and the trip was quite an experience. Dr. Ruml and Dr. Pak were great. Dr. Ruml knew the answers to most of my questions and she left quite an impression on me. These people are working around the clock to try to come up with the answers and I truly believe it will happen in the not too distant future. But for now I continue to suffer and put my family through this ordeal. My husband supports me and works two jobs to keep our household going. Since I have been connected with CSN I have made some fabulous friends. They are Brian Kirby and Marilyn Shipley. I couldn't make it without either of them. We talk on the phone and write. I would like to thank Jann Ledbetter for leading me to these two wonderful people. I have just recently met a third person, Tina Robinson, who I am starting a new friendship with. Life with Cystinuria is hard but with my family and these friends and doctors, I think I can get by.

As I write this, I am getting ready to go into Duke University Hospital for more surgery. There is a doctor, Glenn Preminger, at Duke who studied under Dr. Charles Pak in Texas and he seems to know a lot about this disease. So off I go again down the yellow brick road to see the wizard. Maybe the wizard's at Duke.

Please contact me anytime because I am always willing to listen.

Brenda Jacobs  
5557 Telegraph Road, Gretna VA 24557  
804-656-2859



## In Memory of Michael Jordan ...

I first met Michael Jordan in the winter of 1995 (a little more than a year ago). After struggling with some pretty serious drug induced diseases

caused from the medication I was taking for my disorder, I decided to do more research on Cystinuria to see if any new developments have been discovered. My search efforts eventually put me in touch with Jann Ledbetter and the Cystinuria Support Network. Jann provided me with information about the network and a list of members. In addition, she provided me with a list of email address for those persons who were on-line. I immediately began contacting people on-line. Michael was one of the first people to reply back to me.

This was the first time in my life that I had ever met anyone else with Cystinuria and was able to talk to someone who had suffered the way that I had. Michael and I seemed to really "CLICK". He would send me email several times a day. Michael was on disability and had a lot of time on his hands. Many nights I would find 2 or 3 messages from him in my inbox. He obviously suffered more from this disorder than I ever did. It seems that every day was a constant struggle for him. I never knew when I didn't hear from him if he was feeling better and was too busy to write or if he was in the hospital. We continued to share experiences with each other and offer support to each other during times of pain and suffering. Michael had a special way of really understanding where I was coming from and could relate to my feelings since he had experienced much of the same pain.

Michael and I finally met in person last May. We spent 5 days at the GCRC at the University of Texas at Dallas with Dr. Ruml getting our conditions evaluated. I was so excited to meet him in person and spend endless hours talking with him. However, it was very difficult to watch him struggle the whole time that we were together. When we departed at the airport, we made a promise to each other that we would always stay in touch.

As time went on, we managed to stay in touch even with my busy schedule of work, graduate school and a job search. On Friday October 13, I received a call from Leslie, Michael's caregiver and dear friend, to tell me that Michael had passed away earlier that day. I was stunned and spent the next few days in shock. Why did God take him at such a young age? Why did he have to suffer so much? However, there was a sense of peace that eventually settled in. It was my belief that Michael was no longer suffering.

I felt that it would only be fitting to write this article for the next newsletter. You see, Michael believed whole heartily in this network. He believed in the idea that we were finally able to meet other people who have suffered as much as we have with this disorder and to share any information that we could. I honestly believe that the network was one of the greatest things that ever happened to him.

Michael was a good person. Even while he struggled with his problems, he still managed to take time to talk with schools and organizations about what it means to suffer with a long term disability. He spent many hours in the hospitals talking with patients and trying to give comfort to those who were struggling. He had a strong believe in God and wanted to help anyone that he could. From what I know of his life, Michael had lived to see things that many of us can only dream of. He had an endless list of stories about his experiences with famous persons. His email address (starstrk@aol.com) was evidence of how important this was to him. Michael was a big country/western fan. He told me that he would listen to Reba McIntire as a way of escaping from his pain. I am not a country/western fan but Michael's legacy will always live on every time I hear one of her songs.

Now that Michael's struggle is over on this earth, it is my hope that he has found peace in heaven. I know how important this network was to him. I feel that in the short time that I knew Michael, I was able to know him and his deepest feelings. I know that Michael loved his family and friends dearly. I have lost a good friend and I will miss him in the years to come.

Good-bye Michael

Tammy Datri



## Ask the Doctor

Here are a few questions sent in:

**Question:**

- 1) Should amino acid supplements be taken?
- 2) Is mental retardation and short stature related to protein malabsorption?
- 3) Could asymptomatic cystinuric siblings have malabsorption of amino acids?

**Answer:**

While it is true that most cystinuric patients are unable to absorb some amino acids (cystine, lysine, arginine, and ornithine), there is not a problem with protein malnutrition. Amino acids are also absorbed in pairs, and cystinuric patients can absorb these amino acids when they are in the pair form or short chains. Thus, there is not a problem with protein deficiency and amino acid supplements are not necessary. There is also no good evidence that mental retardation is in any way associated with cystinuria; and the observation that cystinuric patients are shorter than the general population has not been substantiated.

**Question:**

Will a kidney transplant solve the problem?

**Answer:**

Yes, if a cystinuric patient receives a kidney from a non-cystinuric donor, that kidney will function normally and will be able to reabsorb cystine from the urine. Unfortunately, a renal transplant is a major procedure with long-term consequences from the medications required to prevent rejection. It is, however, the only option in some instances, but the need for this drastic measure is not common.

**Question:**

Is there a decreased life span?

**Answer:**

If a patient with cystinuria is able to prevent stones, or at least produce and pass stones without resulting in blockage of the urinary tract, there should be no cause for reduced life span. Many patients never develop renal insufficiency (poorly functioning kidneys), particularly if they are compliant with their fluid regimen. If kidney damage does not occur, and in the absence of other complicating medical problems, then life expectancy is the same as in someone without cystinuria. If the kidneys become chronically

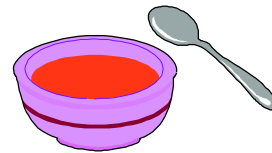
blocked, function may worsen; if they become chronically infected, they sometimes have to be removed. If patients do end up on dialysis or receive a transplant, then they may have complications of those procedures and perhaps not do well. Like any patient on dialysis or with a transplant, serious and sometimes fatal complications are more likely than in an otherwise healthy person.

Answers graciously provided by Dr. Lisa Ruml, University of Texas, Southwestern Medical Center in Dallas



## Stone Soup

A column containing bits and pieces of information, questions, anecdotes and ideas for discussion.



## Ask Another Cystinuric

Here are a few questions sent in by people who would like answers from other cystinurics:

Brenda Jacobs wonders:

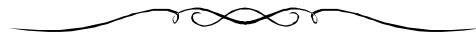
- 1) I have a lot of trouble getting any pain medicine. Does anyone else have this problem?
- 2) Does Cystinuria cause chronic mental depression?

Christine Johnson wonders:

- 1) How many people with Cystinuria are on disability and what do I need to do to get it?

I tried for it when I first found out about Cystinuria. I missed so much time from work that I lost my job. I was told that Cystinuria is not disabling and that I'd have to find a job I could handle with the disease. Four years later and several surgeries passed, I feel that I am unable to keep up working a 35 hour job. I'm tired and in pain a lot. I miss a lot of time from work.

- 2) Does anyone know anything about an ash diet for people with Cystine stones?



## Thiola News

The company that makes Thiola in Japan has decided to stop making it and is therefore transferring the manufacturing rights to a US company. It will be made here and therefore should not only be cheaper (because of the lack of taxes/duties, etc.), but there will be a new formulation of 250 mg in addition to the 100 mg tablets, so fewer pills will have to be taken (further reducing the cost). We will soon be trying the new tablets in patients here so that the FDA can approve the initiation of marketing.

*Submitted by Dr. Lisa Ruml*



## Ya Gotta Laugh

I had a nephrostomy bag for over a month last summer. I wasn't suppose to drive but I live alone and was bored to death! So, I put on a pretty full skirt, got in the car and drove to the library. The library was closing so I quickly got a book and returned to my car. I then realized that my bag was so full it was about to burst, so I quickly glanced around to see if anyone was near, held the bag out the car door and emptied it in the parking lot. Out of nowhere, an older couple walking their large male dog came up beside my car. "Fido" lifted his big leg and "marked his territory" all over the side of my car, barely missing my leg!!!

*Submitted by Tina Robinson.*

An elephant walking through the jungle came across a mouse. The elephant looked down and said "Gee, you're little"! The mouse looked up and said "Well, I've been sick!!!"

*Submitted by Beverly Jaquish*

## Thank You!!!



Thank you to the following people who have made contributions to The Cystinuria Support Network since the last newsletter was printed:

The Raethel Family

Joan Miller

Tamara Homan

Tim Walsh

Barbara Pinches

Tamara Datri

Sharon Emmanuelle

Jeff Orlando

Tim Gode

Doris Jackson

Janet Bilicki

All donated funds are used to offset the costs of mailing, printing, phone calls, on-line services, and to pay annual membership dues for CSN in organizations such as National Organization of Rare Disorders and the Alliance of Genetic Support Groups.

**A heartfelt THANK YOU to Doug Morrison and his employer, the lawfirm Bogle & Gates in Seattle. Doug generously gave his time and energy to set up the Cystinuria Support Network as a nonprofit organization late in 1995.**

Thank you to all of you who took the time to write articles or share your stories for this newsletter.

# UPDATED CSN LIST ENCLOSED!!!!

If you are one of the more than 70 people who have filled out the CSN information sheet and returned it to me, you will find an updated list enclosed with this newsletter.

Please check the information about yourself for accuracy and let me know if any changes need to be made.

If you have not sent me the information about yourself but would like to participate in the networking aspects of this group, please fill out the form in this newsletter and send it to me.



*Send me an article about yourself and your experience with Cystinuria so that other participants can get to know you.*

*Send me a concern you are struggling with that someone else may have some insight into for the "Mailbag" column. This could be a question and answer type column with medical opinions if appropriate.*

*Send me ideas you have for articles for future newsletters and I will try to locate someone who is willing to address the issue.*

**This newsletter requires your input.**

*Send your ideas, questions, articles etc. to:*

*Jann Ledbetter  
Cystinuria Support Network  
21001 NE 36th Street  
Redmond WA 98053  
206-868-2996*

*email: cystinuria@aol.com*

**\*\*\*\*\*Please note my address change!!!\*\*\*\*\***

*If you are interested in participating in the Cystinuria Support Network and have not already done so, please fill out the following form and send it to:*

*CSN c/o Jann Ledbetter  
21001 NE 36th Street  
Redmond WA 98053*

Name \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Phone \_\_\_\_\_ Best time \_\_\_\_\_

*Additional Patient Information:*

Sex \_\_\_\_\_ Date of Birth \_\_\_\_\_

Number of Years since diagnosed \_\_\_\_\_

Current Medications \_\_\_\_\_

Surgeries and other procedures you've experienced \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other information you would like to share \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How did you hear about CSN? \_\_\_\_\_