Dear Registry Participant,

Yes, it is time for another edition of the Cystinuria Newsletter. As most of you know, we had an ICF Patient Symposium in New York. The ICF presented during this meeting.

One well received presentation was from Dr. Michael Grasso, on urologic interventions and the use of renal stents. Dr. Grasso’s renal fellow, Bobby Alexander, discusses the use of stents, in this newsletter, in more detail.

Dr. Asplin, the Medical Director at Litholink, in Chicago, outlines the usefulness of 24-hour urine test as an important test parameter.

Dr. Goldfarb highlights the research grant renewal and gives updates on the Rare Kidney Stone Consortium. I share updates on the Cystinuria Contact and Disease registries, as well as the importance of medical records.

Our friend Gayle Sweeny contributed a piece on the ICF fundraiser. Thanks a lot Gayle!

Retrophin explains how to access to THIOLA through the Total Care Hub.

We hope that you will find this information useful. Feel free to email us any questions you may have or suggestions for the next Newsletter. What is most important, is that you stay stone free.

- Frank Modersitzki, MPH,
April 2015

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**Cystinuria Registry**

*Part of the Rare Kidney Stone Consortium*

**Update on the Rare Kidney Stone Consortium and the Cystinuria Project**

By David S. Goldfarb MD

We are again pleased to announce that the Rare Kidney Stone Consortium (RKSC) was funded for a second five year cycle: [http://www.rarediseasesnetwork.org/RKSC/](http://www.rarediseasesnetwork.org/RKSC/). The RKSC is one of 22 consortia of rare disease study groups called the Rare Disease Clinical Research Network (RDCRN): [http://www.rarediseasesnetwork.org/](http://www.rarediseasesnetwork.org/). The RDCRN in turn is funded by the National Institutes of Health (NIH), specifically by the National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK) and the National Center for Advancing Translational Sciences (NCATS). I mention all these groups because we are grateful for their support and because I think it’s important to know about the organizations that think that kidney stones, especially genetic kidney stones, are important and worth funding. This might be an opportunity to write to your local congresspeople and senators to encourage continued funding of NIDDK, NCATS, RDCRN, and especially rare diseases research.

As before, the RKSC is interested in 4 genetic, or hereditary, causes of kidney stone: cystinuria, primary hyperoxaluria, APRT deficiency and Dent disease. All are causes of recurrent kidney stones and sometimes reduced kidney function. In the new grant we are also interested in an acquired (non-genetic) cause of stones called enteric hyperoxaluria. This disorder is due to bowel disease leading to absorption of too much oxalate, a cause of calcium oxalate stones. While calcium oxalate is the most common form of stones, enteric hyperoxaluria is a rare disease.

The goals of the cystinuria project will again be to continue our previous work. This includes maintaining our cystinuria registry which all of you readers should be involved with. We do want to have your medical records to keep track of a large group of people with cystinuria to see what factors people with more or less kidney stones have in common. We are also continuing to gather samples of blood, urine and kidney stones for our biobank, our collection of materials kept at the Mayo Clinic for study at a later time by investigators with a good idea. We’re currently concluding our “dose response” study in which people take different doses of tio-pronin (Thiola) or d-penicillamine to see how urine chemistry is affected.

Our new protocol is called “the prospective study”. This is like the registry except that it requires that I actually see the patients enrolled, while the registry includes patients who do not see me in New York. We are going to seek 60 people who will see me at least yearly for up to 5 years. We will make sure that participants have at least a yearly kidney ultrasound and 24h urine and blood tests. We are doing this because of the difficulties getting information sometimes from people who live at a distance. We will have centers elsewhere, very likely in Birmingham, Alabama and at Mayo Clinic in Rochester, MN. The goal will be to have really good data on a smaller number of people.
Education, Advocacy, Support, Highlight Sixth ICF Symposium

By Janice O’Connor and Kathryn Jewell

The International Cystinuria Foundation’s sixth symposium on Nov. 1, 2014 at New York University’s Langone Medical Center focused on a wide range of key issues, including new developments in patient care, research, medicine, patient advocacy, as well as the opportunity to speak face-to-face with others who share this journey in one way or another, as caregivers, patients, medical professionals, or pharmaceutical providers.

For those unable to attend, the symposium was recorded and will soon be available for viewing.

ICF President George Brown welcomed the diverse audience to the symposium, and shared the nonprofit organization’s gratitude for the generous support from event sponsor Retrophin, maker of the drug Thiola; as well as Orphic Therapeutics; True Citrus, and two patient advocacy organizations – NORD (National Organization for Rare Disorders) and Global Genes.

Presenter included Dr. David Goldfarb; Dr. Michael Grasso; Dr. Michael Ward; Dr. Amrik Sahota; Dr. Deepa Malieckal; Frank Modersitzki, MPH; Mary Dunkle, Vice President for Communications at the National organization for Rare Disorders; and Retrophin representatives Tom Fernandez and Tricia Sterling. ICF board member Dawn Bare, and her courageous daughter, Allison, one of three siblings afflicted with the disease, also shared their personal journey as caregiver and as a patient so severely affected, she has undergone autorenal transplants on both kidneys.

Dr. Goldfarb, clinical chief of nephrology at NYU Langone Medical Center, chief of nephrology at the New York VA Healthcare System and professor of medicine and physiology at NYU School of Medicine, provided an overview of cystinuria.

The prevailing medical advice, he said, continues to be the critical importance of fluid intake of three to five liters per day; a low-salt, low-animal protein diet; and keeping urine alkaline at a pH level of 7.0 to 8.0, which can be monitored with the use of test strips that can be ordered through your pharmacy or online. Potassium citrate remains one of the key medicines to elevate pH levels.

Dr. Grasso, chief of the Endourology Section at Lenox Hill Hospital in Manhattan and Professor and Vice Chairman, Urology, New York Medical College, Valhalla, NY, presented on surgical procedures, enthralling the audience with videos showing stones being pulverized. Because cystine stones are dense and difficult to break, he described extracorporeal shock wave lithotripsy (ESWL) as an ineffective way to treat cystine stones that may cause damage to the kidneys. Endoscopic treatment is a better choice for cystine stones, he advised, and the smaller the scope the better. Non rigid scopes are easier on the ureter than rigid scopes, but occasionally rigid scopes must be used depending on the location of the stone.

While stents are a necessary evil to prevent kidney damage, they should not be left in for more than one week to prevent them from being encrusted with stones. A string left on the stent allows patients to remove them at home easily, and men should do this while sitting.

Dr. Grasso advised patients to ask for the Cook brand stent, which is made of silicone rather than latex, which can irritate the bladder. Additionally, he advised that a larger stent diameter makes it easier to pass larger stones by stretching the ureter, and a shorter stent length prevents the stent from resting on the bladder and causing irritation. He also recommended patients request valium when having pain with stems, which will relax bladder spasm and is a better alternative to pain medication for stent pain.

Dr. Ward, a Silver Professor at NYU and recent chair of the Department of Chemistry, spoke on new medicines being developed to treat cystinuria, and Dr. Sahota, a professor in the Department of Genetics at Rutgers University and a clinical professor in the departments of pathology and urology, spoke on the CDME study. There is a medicine being tested on mice to prevent cystine crystals from binding and forming stones. While it could take years to develop, it looks promising.
Mr. Modersitzki, research coordinator for the Cystinuria Project of the Rare Kidney Stone Consortium, emphasized the importance of joining the Cystinuria Registry to demonstrate to grant funders that patients are interested in research for new treatment and medicines.

Mr. Modersitzki, whose research at New York University School of Medicine focuses on kidney stones, kidney failure, hemodialysis, anemia and diabetic kidney disease, is also the principal investigator of the Assessment of Health-related Quality in Rare Kidney Stones, encouraged those who have joined the registry to fill out the Quality of Life Study annually. He can be reached by phone or email for additional information. Information about joining the registry can be found at this link: https://www.med.nyu.edu/medicine/nephrology/research/current-investigations/accordion/nephrolithiasis-studies/cystinuria-registry/join

Dr. Malieckal, a second year nephrology fellow at NYU Langone Medical Center, Bellevue Hospital and the New York Harbor VA, is working on cystinuria-related research with Dr. Goldfarb.

Ms. Dunkle provided information about NORD, which was established in 1983 and provides programs of patient advocacy, education, research and patient/family services, and also promotes advances in public policy, timely diagnosis and access to safe, effective treatment.

The Bare family is all too familiar with cystinuria, and they have been a tremendous inspiration to patients, caregivers and doctors alike. Dawn’s experience as a Registered Nurse has helped the family cope with the disease. She is a member of the ICF Board of Directors and serves on its Patient Advocacy Committee. Allison shared her inspiring story of maintaining an active lifestyle and positive attitude while living with cystinuria.
Many patients take medication, such as Thiola, as part of their treatment. Patients should take medicines as prescribed and report any side effects to their doctor.

Retrophin representatives Tom Fernandez and Tricia Sterling spoke about the new patient care hub for Thiola (thiola.com) and conducted a focus group among patients, including those who do and do not take the drug. Similar informational meetings and focus groups are now taking place at various locations in the United States.

More useful facts and tips from the symposium:

- Ultrasound is your first choice for a stone or blockage, according to a study reported in the New England Journal of Medicine. A CT is better, but usually is not worth the radiation exposure. Link: http://www.nejm.org/doi/full/10.1056/NEJMoa1404446

- If you are interested in evaluating your kidney function go to Nephron.com. You will need the following information: age, gender, weight, race, and plasma creatinine. Here is the link: http://www.nephron.com/cgi-bin/CGSI.cgi. Normal creatinine level is 0.6-1.2 mg/dl. If it increases to 2.0, or any time it doubles, the patient has lost half function. Loss can be temporary due to various causes, for instance a blockage caused by a stone or infection.

- LithoLink (litholink.com) is the company to request for your 24 hour urine lab. They are helping us obtain more information for research in the future regarding Cystine output in relation to other stones, and other important information.

Cystinuria Contact Registry

What is the Cystinuria Contact Registry?

The Contact Registry is a databank designed and maintained by the Cystinuria reproach group at New York University. Information stored in this registry is collected from a web-based contact registry form. The NIH, as a finding institution, contracted the University of South Florida to act as the Data Management Coordinating Center (DMCC) of all Rare Disease Consortia. The DMCC operates contact registries for all Consortia, and forwards entries to us, and include those in the Cystinuria Contact Registry.

We were able to include over 500 participants in the contact registry. This databank serves as a communication and enrollment tool; it is not considered research. All participants in this databank are included in our email list server, for cystinuria relevant information, like registry updates or new potential research studies.

We realized that there is sometimes a disconnect between the Cystinuria Contact Registry, and the Cystinuria Disease Registry. After enrollment in the contact registry, some participants have the impression that they have signed up for a research study. However, this is not the case. Before participating in any research-related activities, prospective participants are asked to complete an informed consent form, or an assent if the participant is a child.

Most participants are not seen at any of the research sites such as NYU, Mayo Clinic or University of Alabama; we consent patients via mail. After signing up for the contact registry, participants receive the enrollment package. This package includes a cover letter, consent form for the registry, assent form if it was indicated that the participant is below 18 years of age, return envelope, patient questionnaire and medical chart release form. Cystinuria patients that wish to enroll in the registry, are asked to return the signed consent form and other documents.

After we receive these documents, we email patients, to schedule a confirmation call. This call is very important, as it is used to confirm that the participant is ‘real’, understands all involved tasks and given an opportunity to ask questions. Again, without a signed consent form and confirmation call, patients cannot enroll in the cystinuria registry. We have to make sure the all information we collected is accurate. This is mandated by research integrity and overseen by the research sponsor, as well as our institutional overview board.

Cystinuria registry update

As seen above, the Cystinuria Registry is also referred to as the disease registry. We have 300 participants enrolled in this registry and collected cystinuria-relevant data. We plan to keep this registry open during the next 5 year funding cycle. For the registry, we plan to collect medical information on annual basis. This includes a patient’s medical history (or any changes), regular blood work to monitor kidney function, 24-h urine results, renal image data, information about stone
events, cystinuria relevant medications and stone-related interventions. To further assist patients, we will soon release a Cystinuria Registry Diary.

We have some additional research studies directly connected to the Cystinuria Registry, the biobank and quality of life study. In addition, obtained approval for a Cystine Capacity study (CysCap) and a Thiol Bind Drug study and which are open for enrollment. Due to the design of these studies, subsequent studies require enrollment in the Cystinuria Disease Registry. Therefore, the Cystinuria Registry is a patient’s point of entry, and the patient decides if they want to be more involved in cystinuria research that goes beyond allowing the collection of existing medical records. All enrolled registry participants qualify for the biobank. While the quality of life study enrolls participants older than 5 years, and enrollment in the CysCap and Thiol bind drug studies depends on the local site and medication treatment. If a patient does not have access to Litholink 24-h urine tests or take a Thiol binding drug, they cannot be part of these two studies. They can however, remain in the cystinuria registry.

For the new funding cycle, we planned a new study for which we want to enroll a minimum of 50 participants and follow these participants for 4 years. The new study include a biobank, quality of life assessment, and annual site visits will required for all participants. For more details, please read Dr. Goldfarb’s more detailed description.

For the Cystinuria Disease Registry, we are currently undergoing a detailed review of all participants. Participants that cannot provide a medical release form, medical information or medical records and/or do not respond to emails and phone calls have to be considered ‘lost to follow-up’ and will be excluded from the Cystinuria Disease Registry, beginning summer 2015. These participants will receive a letter from us with a detailed explanation of the withdrawal from the registry. Read the last newsletter or contact us if you have questions regarding the collection of your medical records. The following studies are still open for enrollment:

- Cystinuria Disease Registry,
- Biobank,
- Health-related Quality of Life,
- Cystine Capacity (CysCap),
- Thiol Binding Drugs.

**Cystine dimethyl ester**

By David S. Goldfarb, MD

Cystine dimethyl ester (CDME) is a possible new drug for cystinuria. The molecule looks like cystine:

![Cystine dimethyl ester](image)

but it has 2 methyl groups, CH₃, sticking out of the sides.
We think those methyl groups get in the way of cystine forming crystals and kidney stones. Dr. Michael Ward, a professor of chemistry at NYU used a technique called atomic force microscopy to measure the rate of cystine crystal growth. In the picture below you can see the familiar 6-sided cystine crystals. They grow out and the rate at which these steps grow out can be measured. The red lines show the direction of crystal growth. Dr. Ward showed that CDME significantly slowed the rate of crystal growth. The paper showing this effect was published by Dr. Ward, Dr. Goldfarb and others in Science in 2010.

Then we gave CDME to mice with cystinuria. This mouse model was developed by Dr. Amrik Sahota, a professor of genetics at Rutgers in New Jersey. He was able to knock out one of the genes so that mice would have too much cystine in the urine, like people with cystinuria. For reasons we don't understand the mice get more bladder than kidney stones.

The mice got CDME in their drinking water. Half the mice just received water and half received the drug. The result was exciting because the mice treated with CDME had more stones, but much smaller stones, than the mice treated with water. On the left are the stones from the bladders of mice treated with water and on the right from the bladders of mice treated with CDME: more, but smaller. The total weight of stones in the treated groups was a lot less than in the water-treated group.

The drug was well-tolerated by the mice. They showed no evidence of liver or kidney problems after taking it for 1 month. We think this is worth studying in people. We are currently working with a pharmaceutical company in the UK to discuss phase I studies of CDME in people.

24 hour urine testing for cystinuria

By John Asplin MD -Medical Director, Litholink -Chicago, IL

Physicians usually request patients with cystinuria to perform 24 hour urine collections to help guide therapy to prevent additional cystine stones from forming. The results for the 24 hour urine can provide insight into your diet and the effectiveness of any medication that has been prescribed. The utility of the study depends on the patient’s ability to collect the urine accurately, which means collecting all urine passed in the 24 hour period as well as replicating your typical diet and activities during the collection. Trying to increase your fluid intake or better adhere to your diet for the one day of the collection in order to “make your doctor happy” will not lead to better therapy.

Below are listed a number of urine chemistries that are often included in a cystine urine panel, with a brief description as to what can be learned from the test.
Volume: The urine volume is the amount of urine that has been passed in the 24 hour time period. The larger the urine volume, the more dilute the urine is and the less likely it is that cystine will crystallize and lead to stone formation. For most patients with cystinuria, the goal is to excrete at least 3 liters of urine per day. However, your physician may recommend more than 3 liters per day based on how frequently you form cystine stones and how much cystine is excreted in the urine. Some patients are able to successfully prevent stone formation just with a very high fluid intake. The only way to keep urine volume high is to drink plenty of fluids. It is hard to estimate how much fluid any given patient must drink in order to make 3 liters of urine as the fluid we consume can either be lost as sweat, in the stool as diarrhea or as urine. Generally, it requires some trial and error to gauge how much fluid you may need to consume to consistently produce 3 liters of urine.

Cystine Excretion: The amount of cystine excreted in a 24 hour time period is a critical determinant of stone risk. Though all patients with cystine stones excrete an abnormal amount of cystine in their urine, the actual amount can vary considerably between patients. In general, patients with very high cystine excretion rates will need to be treated more aggressively to prevent stones than a patient with only a moderate elevation in cystine excretion. Your doctor may try to reduce cystine excretion by making alterations in your diet, or your doctor may try to lower cystine excretion by giving you a drug that binds to cystine (thiol binding drugs such as tiopronin or Thiola, or d-penicillamine).

Urine pH: pH is a measure of acidity of the urine. Cystine becomes more soluble (less likely to crystallize and form stones) as urine pH increases, so your doctor may prescribe a drug to increase urine pH. Potassium citrate or sodium bicarbonate are the drugs most commonly used to raise urine pH; potassium bicarbonate is sometimes used as well. Cystine solubility doesn’t start to increase until urine pH gets above 7.0 and the closer the urine pH gets to 8.0, the more soluble cystine becomes. A urine pH of around 8.0 is the maximum that can be obtained by giving patients potassium citrate or sodium bicarbonate.

Urine sodium and urea nitrogen: Dietary changes can be effective in reducing cystine excretion in the urine and urine chemistries can be useful in monitoring dietary habits. Diets high in sodium lead to higher rates of cystine excretion in the urine, so low sodium diets are frequently used as a way to treat cystinuria. Most of the sodium in our diet comes in the form of common table salt (sodium chloride). Many foods have salt added during preparation so it can be difficult to keep track of how much sodium is in the diet. The amount of sodium (Na is the chemical symbol for sodium) in the urine is a very good marker of diet sodium intake. Proteins are made of amino acids; cystine is one of the amino acids. A diet high in protein will provide more cystine which will lead to more cystine being excreted in the urine. Urea is a waste product of protein metabolism and diet protein intake can be estimated by measuring urea excretion (the actual test name is urea nitrogen).

Urine creatinine: Creatinine is a waste product from muscle tissue. Approximately the same amount of creatinine is manufactured by a person’s muscles day after day. Your doctor will use the creatinine value to assess how well the urines were collected. A series of completely collected urines will all have creatinine excretion values within a fairly close range.

Cystine supersaturation: Supersaturation relates the concentration of cystine in the urine to the solubility in the urine. This is a time consuming measurement so most laboratories do not measure it; in such situations your physician will estimate it from the cystine concentration and urine pH. However, a direct measurement of supersaturation can be made by mixing urine with cystine crystals and seeing if the crystals dissolve (an undersaturated solution) or grow (supersaturated). A value of supersaturation less than 1 is an undersaturated urine, a value above 1 is a supersaturated urine. To prevent cystine stones, you want to keep your urine undersaturated with respect to cystine. The supersaturation value allows your doctor to see if all the actions that have been taken (diet, fluids, and/or medications) have lowered the urine supersaturation sufficiently to prevent stone formation.

Cystine capacity: Cystine capacity is another way of expressing supersaturation levels, but it avoids potential problems of interference with assay results from thiol drugs such as tiopronin and d-penicillamine. A value that is a positive number corresponds to an undersaturated urine, in fact the number is the actual amount of cystine that can be dissolved in a liter of your urine. The higher the positive number, the less likely a stone will form. A negative number is a supersaturated urine, the amount of cystine that precipitates from a liter of urine in order to reach solubility. The larger the negative number, the more likely a stone will form.

Summary: Ultimately we expect that higher supersaturation and lower capacity values will be associated with fewer kidney stones.
The endoscopic treatment of urologic diseases, like kidney stones, often calls for the placement of ureteral stents. Often, the use of an ureteroscope, especially in a naïve (previously untreated or un-stented) ureter with the addition of stone manipulation (i.e. laser lithotripsy or extraction) may result in inflammation and edema (swelling) of adjacent delicate tissues. One could imagine that if there is swelling in the ureter, which serves as conduit of urine from the kidney to the bladder, there would be a backup of urine and, therefore, pressure in the affected kidney due to obstruction. This leads to pain, hydronephrosis (dilation of the blocked kidney), and ultimately failure of the kidney if the obstruction is longstanding. The most common method the urologist employs to prevent this obstruction is placement of a ureteral stent after treatment of the kidney stone (or other pathology, like tumors).

A ureteral stent is essentially a hollow tube that traverses the ureter allowing urine to drain from the kidney to the bladder. There is a coil up in the kidney and one down in the bladder holding the stent in place. Small holes on either end of the stent allow for urine to pass through. The properties of the stent material allow for it to become very pliable when wet. This same property allows for urine to flow down both around the stent as well as through it, maximizing drainage. The stent, therefore, serves a crucial role in maintaining opening of the ureter until healing takes place and swelling resolves.

Indications for stenting include:

- Relief of ureteral obstruction either from internal or external causes (stones, cancer, stricture) and provide drainage.
- Promote healing of the ureter by providing internal support after a ureteral procedure or reconstruction.
- Assist in dilating the ureter before the next ureteroscopy.

Unfortunately, having a ureteral stent in place is not without its own set of side effects for the patient. Having treated an abundance of stone formers in our practice, we are accustomed to hearing… “Doc, the last time I had a stent…” often followed by various descriptions equating to some type of negative experience. Although renal colic is considered by those afflicted with kidney stones to be the “worst pain imaginable,” there are many patients who fear the post-op course more-namely having to endure a ureteral stent.

Listed below are common complaints we hear from patients who have ureteral stents followed by the physiologic explanation for these complaints.

- **I have a constant or intermittent feeling of pressure in my pelvis:** This is due to the natural tendency of the bladder to spasm or contract in order to try to expel the foreign body (i.e. stent). The bladder is essentially a large hollow muscle that serves as a low pressure reservoir for storage and elimination of urine. The delicate lining, or mucosa, of the bladder is easily irritated by foreign bodies, inflammation, or infection (UTI). In response, the bladder contracts in an effort to expel the offending agent. The resultant sensation for the patient is pressure in the pelvis.

- **I have the frequent urge to urinate:** As above, this sensation is also due to bladder spasm and the stent rubbing against the lining of the bladder. It is not hard to imagine that each contraction/spasm of the bladder is accompanied by the urge to urinate, contributing to urinary urgency and frequency. After all, bladder contraction is the way we normally expel urine.

- **I have blood in my urine (hematuria):** This can be due to recent manipulation of the urinary tract via cystoscopy, ureteroscopy, and/or stone manipulation. However, having a stent in place can exacerbate or prolong the hematuria. The stent irritates the mucosal lining of the genitourinary tract, especially with vigorous physical activity, leading to increased blood in the urine.

- **I have pain at the tip of my penis:** This is a referred pain phenomenon we see in males due to irritation of the prostate. If the stent is long enough to lie on the prostate, it can create prostatic inflammation. This mimics prostatitis symptoms and often presents as pain referred to the glans penis.

- **I have flank pain, especially while urinating:** Normally, the ureter is a one-way conduit delivering urine from the kidney to the bladder. Facilitating this one-way flow is a “valve” where the ureter inserts into the bladder obliquely. As the bladder fills, this portion of the ureter is compressed, preventing backflow of urine also known as “reflux.” Unfortunately, a ureteral stent bypasses this anti-reflux mechanism creating a two-way flow. As pressure in the bladder increases due to urine accumulation or bladder spasm, urine has a tendency to travel in the opposite direction- up the stent toward the kidney. This can cause transient dilation that translates to flank pain for the patient. This sensation is worse when voiding because bladder pressure peaks as it is trying to empty.
How can we limit the discomfort associated with stents?

As described above, many of the symptoms are caused by bladder over-activity or spasm. An entire class of drugs called “anticholinergics” is dedicated to treating this condition. The primary medications for bladder spasm in this class are oxybutynin, solifenacin, and tolterodine. These drugs can have untoward side effects that interfere with patient compliance, like urinary retention, dry mouth, and constipation. In our practice, we have found that many patients respond better to muscle relaxants like benzodiazepines (i.e., diazepam, Valium, 5 to 10 mg) given every 6 to 8 hours. These are well tolerated with less side effects than the anticholinergics. For patients that are admitted to the hospital and/or are having severe symptoms, a rectal suppository of belladonna and opium (B & O suppository) can provide local quiescence to the bladder as it sits just anterior to the rectum. More recently, several studies have looked at using alpha-blockers (typically used to treat BPH) to manage stent related symptoms. This literature points to the beneficial effects of drugs like tamsulosin (Flomax) in improving patient discomfort.

Choosing the appropriate sized stent will prevent excessive irritation to the mucosa and prostate from redundant stent coiling in the bladder. There are several studies in the literature that support choosing the right stent length to ameliorate symptoms. The urologist generally makes a decision on stent length based on direct measurement of the ureteral length or using the patient’s height as a surrogate.

One can limit hematuria (blood in the urine) and subsequent discomfort and spasm by avoiding strenuous physical activity while a stent is in place. Also, drinking plenty of fluids and remaining well hydrated serves to dilute any blood in the urine preventing clots from forming— not to mention the myriad of other health benefits that adequate hydration provides.

The bottom-line is, as with any recovery process, every patient deals with different aspects differently. It’s hard to predict who will tolerate a stent better, but as the majority of our practice is devoted to dealing with complex stone disease, we have utilized various methods that can help with patient tolerance of ureteral stents.

With the right combination of carefully tailored treatment of underlying pathology, patient preparedness, advice on post-op activity, and medication (if needed) many patients find that they don’t even know they have a stent.

References:


Access to Medical Charts

The Cystinuria Disease Registry collects existing cystinuria-relevant medical information on all patients and includes this information in a databank. Without access to a patient’s medical information, participation in the cystinuria disease registry is not relevant. For the registry, if available, we collect the following information for every calendar year after the diagnosis of cystinuria:

- **Complete blood count (CBC)**, if this was done, results for white blood cells, hemoglobin, hematocrit, platelets are collected.
- **Blood serum**, if this information is available, we collect results for creatine, potassium, and bicarbonate. Blood serum and CBC can be collected at any doctor’s office or hospital, and if it is not available at the urology office.
- **24-hour urine**, we try to collect a minimum of one 24-hour test each year. This could be done by Litholink or any other lab that performs this test.

- **Imaging reports**, any ultrasound, x-ray or CT report to the check for stone burden and growths.

- **Stone events**, we would like to know how many kidney-stone-related events occurred during a calendar year i.e. number of stones passed and/or number of surgical removal procedures.


- **Stone treatment**, information about any diet restrictions (low protein, low salt, fluid intake) and any cystinuria related medication (citrates, thiol-binding drugs).

We are working on a patient diary that should help patients to keep track of all the items above. We will distribute this diary, to all enrolled patients, after once receive the approval of the research board.

**Should you keep copies of your medical records at home?**

We recommend that you do. Your information will be readily available for the cystinuria registry. Having cystinuria-related information readily available could support you:

- In monitoring your cystinuria progression and treatment,
- If it’s necessary, to seek treatment from a different doctor or hospital
- In keeping track of potential x-ray exposure through multiple KUB’s or CT’s and to avoid not needed imaging,
- If your information at the hospital or doctor’s office is destroyed due to a natural disaster, or a fire etc. you will a back-up copy.
- If you require a second option for treatment.

Most medical records are available electronically; some healthcare providers and hospital offer a patient portal for access to this information, through their website. You have the right to request your medical information from your healthcare professional. It is the law. Please help in collecting your cystinuria-relevant information, to build a strong cystinuria database. Become your own advocate.

**Be Fashionable & Brave: Bravelets Jewelry Supports the ICF**

By Gayle Sweeney - Member, ICF Board of Directors

As a parent of two young ladies with cystinuria, I never feel like I do enough. I know, I make appointments, talk to the doctor, sit in the ER, wait for them to come out of the OR, but it just didn’t seem like enough, especially when I think about how much money some of the other diseases have for research and awareness. They have television, newspaper and magazine ads - that is if they are a well-known disease.

What about our small group, the one people don’t know about - how do we raise money? I started exploring fund raisers. Traditional fundraisers that we have all purchased products from just won’t work - we are too spread out, all over the world in fact. Then I came across Bravelets, a family-owned business committed to giving back. For each purchase, nonprofit organizations receive a $10 (U.S.) donation from Bravelets. It was simple. I would give it a try.

The Austin, Texas-based company offers jewelry tailored to a specific cause and designed to symbolize hope, strength and courage during the most difficult times. I registered the International Cystinuria Foundation, researched the color scheme for our specialized bracelets and necklaces (green for kidney disease awareness), and it was done. I was committed to seeing this work.
Each piece of jewelry costs between $25 to $42, and with each purchase, Bravelets donates $10 directly to the ICF to help support our organization’s mission. Within the past year, we have raised $310. It may be a drop in the bucket (pun intended), but it’s a start.

I am always looking for ideas or products that contribute to the ICF. I hope sales continue and the world becomes accustomed to hearing “I have cystinuria, let me tell you about it.”

To learn more about the ICF Bravelets, visit [www.bravelets.org](http://www.bravelets.org) and search “cystinuria.”

**THIOLA® (tiopronin) Tablets Readily Available**

Some of you may have experienced supply issues in the past. Those issues have recently been resolved. In an effort to ensure no patient is faced with having to go without a THIOLA prescription, a minimum of an entire year’s inventory will be maintained. In addition, THIOLA is now available through one, convenient source—the THIOLA Total Care Hub.

**What is the THIOLA Total Care Hub (The Hub)?**

The Hub is a comprehensive patient services program providing patient support, access to therapy, education, and delivery of THIOLA to over 700 patients.

**How do I participate in The Hub?**

It’s very easy. Healthcare providers simply fax an enrollment form downloaded from ThiolaHub.com which serves as the prescription for THIOLA. A dedicated Hub Counselor is assigned to assist you with insurance benefit investigation, prior authorization, and financial and reimbursement options. The Hub Counselor will also contact you to schedule the delivery of your prescription directly to your doorstep and answer any questions you may have.

**How do I contact the Hub?**

There is one, convenient toll free number 1-844-4-THIOLA (844-484-4652) to access these resources, including a 24-hour on-call pharmacist at your disposal.

With less than a year in operation, some of the things patients appreciated most about The Hub included the co-pay assistance program, personal attention through your dedicated Hub Counselor, free drug for those who qualify, as well as seamless home delivery of their medication.

If you would like to learn more about The Hub, please call us at 1-844-4-THIOLA (844-484-4652) or visit us online at [www.THIOLAHub.com](http://www.THIOLAHub.com).

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**Internet Resources**

NYU School of Medicine, Division of Nephrology - main site for the cystinuria registry  

Cystinuria Support Network, active Yahoo email group  

and [http://www.facebook.com/groups/2225138217/?fref=ts](http://www.facebook.com/groups/2225138217/?fref=ts)

International Cystinuria Foundation  
[http://www.cystinuria.org](http://www.cystinuria.org) and [http://www.facebook.com/groups/37121694952/](http://www.facebook.com/groups/37121694952/)

Rare Kidney Stone Consortium, main consortium web site  
[http://www.rarekidneystones.org](http://www.rarekidneystones.org)

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