



## To Our CRIC Participants

I hope you have been able to take advantage of the sunshine and warm weather of the summer season by spending some time outdoors and spending time with family and friends. As the 2012 summer season nears a close, we are pleased to bring to you this newsletter containing articles about maintaining brain health, options for dialysis, and finding accurate health information on the internet.

I would also like to take this opportunity to fill you in on exciting plans to be developed over the next year for the CRIC Study. As you know, for almost 10 years now, the CRIC Study has successfully recruited and followed a study population of almost 4000 participants with chronic kidney disease. Near the time of the Winter 2012 newsletter we learned that the National Institutes of Health had committed to extending the CRIC Study for a third phase that will begin in Spring 2013 and continue through 2018. Since that time much progress has been made and my co-investigators and I are very excited to finalize the design of the protocol for this next phase of CRIC over the coming months. The extension of the study will not only allow an opportunity to continue to follow our current participants, but will also allow us to expand the study population by recruiting new individuals into the study. We are still in the process of ironing out the details of the extension of the protocol and will share these details with you in subsequent newsletters.

If you have any questions or comments about CRIC or about this newsletter, please feel free to contact us.

Once again, many, many thanks for your partnership in this critical study and your commitment to helping fight kidney disease. As always, we appreciate your continued participation in this important study.

Warm wishes,



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## On the Web...

<http://www.cristudy.org>  
<http://www.kidney.org>

## We'd Love to Hear from You!

Do you have a question about the CRIC study or about kidney or heart disease? If so, please let your local CRIC staff know by writing or calling:

## Maintaining Brain Health for Patients with Kidney Disease



Cognitive functioning encompasses the ability to think, remember and reason. Declining cognitive

function can range from mild decline to dementia. Dementia is a general term for decline in memory and other mental abilities that interfere with daily life. The most common form of dementia in the United States is Alzheimer's disease. Not all persons with cognitive decline go on to develop dementia. Several treatable causes of cognitive decline include depression, medications, thyroid disorders, vitamin deficiencies, and excess use of alcohol

### What are the risk factors for dementia?

Although cognitive decline and dementia become more common as we age, these conditions are not inevitable. In fact, many adults are able to maintain their cognitive health into old age. New research suggests other risk factors for dementia can be influenced by our environment and health habits. Interestingly, the risk of developing dementia appears to increase

as a result of conditions which affect the heart and blood vessels, such as diabetes, high blood pressure, high cholesterol, and possibly, chronic kidney disease (see summary of "Vascular Risk Factors and Cognitive Impairment" in this issue). This may suggest that treatments which slow or prevent these conditions could also prevent cognitive decline.

### How can brain health be maintained?

- Control heart disease risk factors – like diabetes, high blood pressure, and chronic kidney disease and follow a heart healthy diet.
- Stay physically active - some research suggests that exercise can increase brain blood flow, and in so doing may improve performance on memory tests. Many different types of exercise have been linked with better cognitive health, including aerobic exercise, such as walking, swimming, and dancing; and strength training, such as push-ups, sit-ups, and lunges.
- Stay mentally active – For example, take a class, read, or do puzzles. Some re-

search suggests older adults who engage in mental activities delay the onset of dementia. Remaining socially engaged, for example by calling a friend or volunteering is an important component of staying mentally active.

- Quit smoking – Smoking doubles the risk for developing dementia.

### What should I do if I am concerned about my brain health?

Talk to your doctor. He or she can assess your cognitive function and do tests to determine the causes if there are signs of memory loss or other cognitive impairments. In some cases, there may be treatments to improve your cognitive function.

A significant amount of the material presented above was adapted from the Center for Disease Control and Prevention's 'The Healthy Brain Initiative' - visit

<http://www.cdc.gov/aging/healthybrain/index.htm> for additional information.

## Vascular Risk Factors and Cognitive Impairment in Chronic Kidney Disease

The Chronic Renal Insufficiency Cohort (CRIC) Study. Kurella Tamura M, Xie D, Yaffe K, Cohen DL, Teal V, Kasner SE, Messe SR, Sehgal AR, Kusek J, Desalvo KB, Cornish-Zirker D, Cohan J, Seliger SL, Chertow GM, Go, AS. Clin J Am Soc Nephrol. 2011 Feb;6(2):248-56

One of the goals of the CRIC study is to investigate why adults with chronic kidney disease appear to be at higher risk for cognitive impairment. Cognitive impairment is a condition characterized by impairments in memory and other cognitive functions, such as language, reasoning and attention. Adults with cognitive impairment may be at higher risk for dementia. In persons without chronic kidney disease, risk factors for stroke and heart disease are also risk factors for cognitive impairment.

During CRIC clinic visits, participants completed a number of tests to assess different cognitive functions. From these tests, CRIC investigators learned that cognitive impairment is more common among adults with lower levels of kidney function, measured by the estimated glomerular filtration rate (eGFR), especially among those with anemia. For example, CRIC participants with an eGFR <30 (Stage 4 chronic kidney disease, those nearing dialysis or transplant) were almost 50% more likely to have cognitive impairment compared to CRIC participants with an eGFR of 45-59 (Stage 3a chronic kidney disease). CRIC participants with a history of stroke were almost twice as likely to have cognitive impairment as CRIC participants without a stroke. Surprisingly, several stroke risk factors, such as diabetes, high

blood pressure, and high cholesterol were not associated with cognitive impairment. In addition, conditions common to kidney disease such as protein in the urine and inflammation were also not associated with cognitive impairment. However, anemia was more common among those with cognitive impairment compared to those without impairment. Using what we've learned about cognitive impairment and anemia so far, CRIC is currently studying whether anemia might be a useful marker for predicting which adults with chronic kidney disease are at risk for developing cognitive impairment.

## Commonly Asked Questions about Treatment: Peritoneal Dialysis vs. Hemodialysis



In an effort to keep your kidney function stable, it is important to take your medications as instructed and maintain good blood sugar and blood pressure control. Weight control via diet management and physical exercise are important as well. Regular follow-up appointments and periodic blood work to measure your kidney function is important to maintain your kidney function.

While many CRIC participants have maintained their kidney function at stable levels, some have lost kidney function over the years leading to dialysis or kidney transplant. Accepting that dialysis is necessary is very difficult and, as a result, is often not addressed. As a CRIC participant, you are asked during your visits, "If you were told your kidney function was worse and you needed to make a choice what would you choose?" Many people respond that they are "not ready to make that decision." Waiting to make this decision increases the risk of being hospitalized and of possible death. If you are an individual who has advanced kidney disease, you may need to discuss a few issues with your nephrologist (kidney specialist) such as whether dialysis will benefit you, the types of dialysis, if you're a candidate for kidney transplant, etc. This article will focus on forms of dialysis; the next newsletter will have information about transplant.

There are two forms of dialysis, hemodialysis and peritoneal dialysis. Having information about both may help you to make decisions about which one may be best for you. It also helps to physically and mentally prepare yourself

before beginning either form of dialysis by visiting a dialysis center, speaking to people about the various types of treatments, and understanding what is involved. Some symptoms people may experience when their kidneys begin to decline include nausea, vomiting, fatigue, and weight loss.

The most common form of dialysis is called hemodialysis (HD). If you proceed with this form of dialysis, your doctor may discuss with you the need for dialysis access through a surgically placed "fistula" or a "shunt." This is usually done as an outpatient surgical procedure where a surgeon connects an artery to a vein in your forearm. As a result, the vein grows larger and stronger, making repeated needle insertions for HD treatments easier. This is often done many months before dialysis begins to allow time for the fistula to mature and grow. Another dialysis access option is to have a synthetic tube that connects an artery to a vein implanted under the skin in your arm. This is called a "graft." The graft can then be used for needle placement and blood access during a HD treatment. A graft does not need to develop as a fistula does, so it can be used sooner after it is surgically placed.

The actual HD treatment varies from person to person and typically occurs at a dialysis center. The typical HD schedule is usually 3 days each week, for 3-4 hours each treatment. A needle is inserted into your dialysis access and connects to the dialysis machine. This machine removes your blood, filters the waste products (as a kidney does) and returns your blood to you. Your weight, fluid, pulse, and blood pressure as well as your blood chemistry values are closely monitored. Changes are often

made to find the correct dialysis time and treatment for you.

The other form of dialysis is peritoneal dialysis (PD). PD begins with a surgical outpatient procedure where a catheter tube is sutured into your abdominal cavity. Once healed, this tube can be connected to a dialysis bag containing specially formulated dialysis fluid. A PD "exchange" occurs when this specially formulated fluid drains into the abdomen, and "dwells" in the abdomen. The abdominal tube is then capped off, allowing the person to freely go about their daily activities. For the next 4-8 hours, the fluid in the abdominal cavity acts as a kidney, filtering the person's blood of poisons. After about 4-8 hours, the tube is re-connected to the empty dialysis bag and the fluid from the abdomen drains by gravity into the empty bag. This process is repeated around the clock. The type of fluid and the amount of fluid vary from person to person and the amount of time between exchanges and treatment specifics are adjusted accordingly. Some people are able to have this type of dialysis while they sleep, freeing up their time during the day.

Both forms of dialysis carry some risks which include infection, low blood pressure and fluctuating blood chemistries, but these things are closely monitored by the healthcare professionals. Each form of dialysis has pros and cons and it is up to you and your physician to determine which option may be best for you. There is truth to the phrase "knowledge is power." By educating yourself on the various options available, you will be able to make the decision that is right for you.

## How to Find Accurate Health Information on the Internet

More and more people are using the Internet to find the health information they need – on everything from the side-effects of a new medication to kidney-friendly recipes. Being an educated patient is an important part of managing kidney and heart disease and the internet can be a wonderful tool for patients. However, if the information is wrong or misleading, it can be dangerous.

The Internet has thousands of pages of good, accurate information on health care and medical conditions, including kidney disease and heart disease. It also has an equal number of sites that can give you the wrong advice or pretend to be providing health information, but are actually advertisements. Here are some things to look for when deciding what websites to use for health information:

### Who runs the website?

Find out who runs and pays for the website. Stick to websites from well-known medical or research organizations or educational institutions. If the web address ends in .gov, or .edu, that tells you it's sponsored by the federal government or an educational institution. If it ends in .org, that means it is a noncommercial organization.

If a web address ends in .com, it means it is commercial. A commercial website can be a good source of infor-

mation but you should always be cautious about the quality of any advice that is provided by a website. Before taking any website advice to heart, be sure to discuss it with your health care provider to make sure that it is legitimate advice and that it is appropriate to your specific clinical situation.

Some tips for determining the reliability of a website are provided below. Be wary of sites that are promoting a product or service and remember to check any advice with your health care provider before following.

### What is the purpose of the website?

Many websites have an "About this Site" link. This section should clearly state the website's goals and mission.

### How is the information on the website presented?

Opinions and advice should be clearly set apart from information that is based on research results. Medical facts and figures should have references, such as citations from medical journals.

### Are the "experts" truly qualified to give advice?

There are no rules or laws to keep inaccurate, self-serving or even dangerous advice off the Internet. It's up to you to be an informed and skeptical reader. Look for author credentials like



M.D., Ph.D., CRNP, DDS or RN, or make sure it was reviewed by a medical expert.

### How current is the information?

Good websites are reviewed and updated frequently with current research and recommendations. Many sites, however, don't have any dates on them, making it impossible for you to judge how up-to-date or accurate the information. If it's more than five years old, it's outdated!

If you find that you are still having trouble finding reliable information, start your search at a site that will provide you with many helpful links, such as MedlinePlus.gov. Your provider can also give you suggestions on reputable websites. Keep in mind that information on the internet does not replace your doctor's advice. If you read something different on the web from what your doctor told you, feel free to ask him or her about it.