Interstitial Cystitis

The effects of diet modification

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Thankfully for patients with Interstitial Cystitis and their families, more research is being done in relation to this condition than ever before. A mainstay of therapy, however, is the modification of the patient's diet, and it is one of the major factors that remain exclusively in the power of the patient's control.

When discussing initial treatment plans with newly diagnosed Interstitial Cystitis patients and families, it has become increasingly important to focus on the value of self-help strategies, including diet, bladder holding exercises, and coping techniques like stress reduction, relaxation techniques, and biofeedback.

Of these, dietary changes can often produce dramatic and immediate effect in symptomatic patients. In fact, in a support group survey of registered IC patients (104 respondents) in Indiana, 60% found diet modification to be the most effective therapy when compared to other modalities, including heat and cold, bladder instillations, hydrodistention, oral medications, TENS units, exercises, stress reduction, and psychological counseling.

It is difficult to determine how and why diet causes problems for so many patients. Dr. Larrian Gillespie's book entitled, *You Don't Have to Live with Cystitis*!, first detailed the implications of diet on interstitial cystitis symptoms. Two food groups are identified:

- Acid Foods (citrus, carbonated beverages, alcohol);
- Amino Acid Foods (tyrosine, tyramine, tryptophan, aspartate).

Both food groups break down into chemical neurotransmitters such as norepinephrine, serotonin, and dopamine, and are thought to irritate the interstitial or inflamed bladder.

For most people, urine is usually in the acid pH range (4 to 6.5) except or unless dietary influences produce "alkaline tide" urine. Normal bladders seem little affected by these high alkaline states except to perhaps experience some passing urgency and burning. Inflamed, atrophic estrogen depleted, and interstitial cystitis bladders, however, may have much more intense discomfort to these same chemical states. One possible theory suggests that if the protective GAG (glycosaminoglycan) layer is lost, the bladder is more vulnerable to these irritating effects. Another somewhat related theory suggests that the cell itself may leak and exchange intra-cellular sodium for extra-cellular hydrogen thereby exposing the very depths of the bladder and adjacent sensory nerve endings to these irritating chemical effects. The same mechanism might explain why some patients experience relief from a teaspoon of baking soda in water, which may ease symptoms by reversing this cellular sodium-hydrogen exchange.

No one totally understands the role the pH of the urine plays in IC or an irritated bladder. Certainly not all IC patients have constantly alkaline urine and the effects of diet vary greatly from one patient to the next. Cranberry juice, for example, has been touted as being "beneficial" to the bladder. In fact, the only theoretical advantage that cranberry juice might offer results from its conversion to hippuric acid, which is weakly bactericidal and in turn serves to acidify the urine. In those patients with recurrent cystitis, these activities may provide a chemical deterrent to the growth of common organisms known as urea-splitting bacteria, e.g. *Proteus, Klebsiella*. In IC patients, the effect of cranberry juice seems to be more detrimental than helpful, possibly because the readily available supermarket juice usually contains less than 20% pure cranberries combined with high amounts of sugar or sweeteners to reduce the tartness.

Rebecca Chalker and Dr. Kristene Whitmore, in the book *Overcoming Bladder Disorders*, note that more than one-third of responding IC patients indicated that acid foods definitely contributed to the severity of their symptoms. Leading their list of dietary "no-nos" was alcohol followed by caffeinated beverages, chocolate, citrus fruits, and tomatoes. Of the fruits mentioned, bananas, strawberries, and pineapples seemed to be the most problematic. Other acid foods commonly cited as being irritating to the IC bladder, include apples, apple juice, cantaloupe, cherries, chilies, curry, cranberries, grapes, lemon juice, peaches, plums, and vinegar.

The second broad group of foods that have been known to bother IC patients is the amino acid group that includes tyrosine, tryptophan, tryamine, and asparate. Foods containing amino acids break down to chemical neurotransmitters such as norepinephrine, serotonin, and dopamine. Theoretically, in a normal bladder the protective GAG membrane provides an effective insulation to these chemicals while in "leaky" IC bladders, this protection is lost. This, in turn, allows these neurotransmitters to cross the bladder membrane and cause discomfort perhaps by stimulation of mast cells and/or

sympathetic nerve endings. These cascades of neurohumoral and neuroendocrine events may then result in the severe pain many IC patients experience from these foods.

The foods most often mentioned in this group include avocados, bananas, beer, aged cheese, chocolate, onions, mayonnaise, sour cream, soy sauce, and artificial sweeteners such as Nutrasweet and saccharin.

As a result of having to eliminate these foods, many IC patients understandably feel discouraged and apprehensive about their diets and the social constraints associated with dining with friends or at restaurants. Fortunately, there are food groups that seem to be reliably safe and well tolerated including carbohydrates such as pasta, rice and potatoes, as well as broiled and grilled chicken and meat. Obviously, highly seasoned ethnic foods such as Mexican, Indian, Thai, Chinese, or Italian, may present problems when dining out as there may be no way to eliminate these foods distinguishing ingredients.

Non-aged cheeses such as American, cottage, cream, and Ricotta are usually well tolerated. Simply prepared fresh fish and canned tuna are usually non-irritating while smoked fish, caviar, anchovies, and pickled herring are often problematic.

Fruits and vegetables are important parts of a healthful diet and yet many of these foods bother IC bladders. Pears seem to be acceptable to most patients and some apricots and melons, as well. Smaller quantities of different fruits may work for some patients. Vegetables such as beets, cabbage, cucumbers, celery, carrots, okra, zucchini, summer squash, turnips, broccoli, cauliflower, brussel sprouts, kale, and watercress are usually tolerated.

Beverage elimination can present problems for some, but this should be eased with the flood of lightly flavored mineral and spring waters now available. Soft drink carbonation can be reduced with a pinch of salt that flattens it, but adding salt can be a potential problem for those on salt-free diets. Sun tea, low acid coffee, e.g. Kava, and low acid late harvest white wines may be fine in moderation. For a few patients, chlorinated water can aggravate symptoms.

As if the problems already identified were not enough, a few patients may also experience symptoms caused by food allergies. Whole grain products may not be well tolerated. Products containing wheat and corn are the most common offenders followed by rye, oat, and barley. Obviously, baked yeast breads may be a significant problem for some. For patients who have milk allergies or are lactose intolerance, dairy products can play havoc.

Many patients ask about the systemic influence of vaginal yeast infections (Candidiasis) on IC. The concept that the two may be related is not well understood nor generally accepted. In theory, ingested yeast and molds may inhabit many bodily systems, and as a result of overgrowth, may stimulate allergies and suppress the immune system. How this in turn would affect the bladder is not clear. Regardless, some people have benefited by eliminating yeast, cheeses, molds, alcohol, as well as fermented foods such as vinegar, soy sauce, and Tofu from their diets.

Food preservatives and additives may be factors requiring elimination in some patients. Dyes such as tartrazine (yellow dye #5) are found in many foods and drugs. Preservatives, including monosodium glutamate, benzyl alcohol, sodium benzoate, and citric acid are commonly present in foods and may in remote ways contribute to symptoms. Since a significant number (30% to 50%) of IC patients will have associated other problems such as irritable bowel syndrome, joint and muscle problems, migraine headaches, allergies, etc., it is possible that many of these dietary alterations might contribute to improvement in these areas as well.

By now, the frustration and confusion about dietary changes must be overwhelming to most IC patients. What, in fact, is a reasonable approach to all of this? Managing the changes necessary to relieve symptoms is crucial and should involve the help of supportive family and friends. Most start with an elimination diet reduced to the bare essential non-irritants; then over time, foods are added back to identify if there are any adverse effects. This effort can take many weeks and months to accomplish, but it is often worth it. When the primary dietary offenders are identified and eliminated, less bothersome foods can sometimes be tolerated. A dietary rotation can be effective where troublesome foods are consumed only every 5-7 days assuming excessive symptoms do not flare up.

As we learn more about the effects of diet on IC symptoms, it becomes apparent that input from a nutritionist well versed in the IC syndrome and food allergies may greatly enhance the benefits of dietary modification. The nutritionist may also help in suggesting appropriate and safe vitamin and mineral supplements in situations where deficiencies occur as a result of severe dietary restrictions.

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