

PREVENTION BUT HOW?

Krisztina Emodi:

As far as prevention goes, it is not as complex, I think, as people think, because your GI tract, again, and the gut microbiome is containing trillions of organisms, bioactive substances, neurotransmitters controlling your immune system produces serotonin. I think it's one of the most incredible systems that we have that we didn't know so much about. Because of how your conduit, again, is connected, it's very important trying to keep this gut microbiome as healthy as possible. Over the years, and again, I have no association with any companies, my question was, "Probiotics, are they all the same?" Because people will tell me, "Well, I'm taking Probiotic X from the store, and I don't want to be paying a little bit more for what you would like me to take." I don't think all probiotics are created equal. There is a fantastic site through the International Scientific association, you can see their little logo on the right side. This is an organization, professional organization of pro and prebiotics. You can actually look at tables clinical trials. You can look at the data, what it treats, what trial was done on what particular system.

WHAT YOU GUT? THE MICROBIOME

- The GI tract is home to trillions of organisms form a complex bacterial community called the gut microbiome
- Probiotics may increasingly be a key factor in protecting this network
- Success depends on strains utilized, bacterial concentration and the way the strains are processed
- Effect of probiotic on the gut microbiome and immune function increased the abundance of several taxa such as Lactobacillus (Ann Neurology: A probiotic modulates the microbiome and immunity in MS patients, 2018).



Krisztina Emodi:

I chose Visbiome seven years ago because this was the only probiotic coming back with documented trial information, helping with what we call pouchitis. Pouchitis is when you would have inflammation technically in the Indiana pouch. Now, because we are using small bowel in the other two diversions also, I made my own deduction that, well, Visbiome should be working, I think, for everybody else. Because

lactobacillus is one of the most important probiotic strains in the gut to not allow the overgrowth of the rest, it has very particular strains, very particular quantities. The company sends them on dry ice. This has to be refrigerated. They come in a box with temperature control. This is the highest quality probiotic I've seen. I would like all my patients to take one per day, and generally people have been doing really well on this. The first case study that I mentioned, where my patient had eight months of symptomatic infections, when something is really inflamed or we are really trying to increase the concentration, there is a powder formulation that is 900 billion organisms per pouch, that needs to come from your provider as a prescription because it's considered to be a treatment. So long story short, after the last positive culture, we kind of threw all hands on deck, he was taking for 30 days the very high concentration, and eventually I put him on suppression.

Antibiotic suppression is done after your last negative culture, and it is very particular what we use. It can be a single-strand structure, which is Bactrim, Keflex, or Macrobid. People who have had ongoing infections, once you have had a negative culture, and you don't have any of the structural strictures or mechanics that need to be dealt with, there was an 80% risk reduction in recurrence. I think that's a really important number to know.

If things are not draining properly, or you have stenosis at the opening of your stoma, oftentimes I will see that again by worsening creatinine because you're backing up. I will be inserting a red rubber into

PROBIOTICS: THEY ARE NOT CREATED EQUAL





| Genus | Species | Deposit References |
|------------------------|---|--------------------|
| <i>Lactobacillus</i> | <i>paracasei</i> | DSM 24733/SD5218 |
| <i>Lactobacillus</i> | <i>plantarum</i> | DSM 24730/SD5209 |
| <i>Lactobacillus</i> | <i>acidophilus</i> | DSM 24735/SD5212 |
| <i>Lactobacillus</i> | <i>delbrueckii subspecies bulgaricus*</i> | DSM 24734/SD5210 |
| <i>Bifidobacterium</i> | <i>longum</i> | DSM 24736/SD5220 |
| <i>Bifidobacterium</i> | <i>infantis</i> | DSM 24737/SD5219 |
| <i>Bifidobacterium</i> | <i>breve</i> | DSM 24732/SD5206 |
| <i>Streptococcus</i> | <i>thermophilus</i> | DSM 24731/SD5207 |

SUPPRESSION

- Daily abx x 3 months at least, SS Septra/Bactrim, Keflex or Macrobid (RR by 80%)
- RR into conduit to drain if stenosis or just needed help with drainage, worsening Cr
- Methenamic hippurate / Hiprex 2x a day → antiseptic, bacteriostatic
- Probiotics – Visbiome, BioK+
- D-Mannose – 1 RTC with good results (glucose isomer), causes saturation of FimH adhesins to prevent bacteria from binding to urothelial receptors

the stoma, not only to now collect urine for culture, but actually we can have the red rubber sitting in your stoma, the end of that goes into your urostomy bag, and you're actually draining properly. I have lots of patients who have red rubbers in the stoma, who catheterize a few times a day to empty properly, and it's a very well accepted method.

Krisztina Emodi:

Hiprex, you might have heard of this. This is an antiseptic supplement. It basically kills bacteria. There has been over 13 randomized controlled trials and studies looking at how this medic ... not medication, supplement works. Basically, it inhibits cell division, and these pathogenic bugs sticking to your urothelium, not necessarily specific for having a conduit or a neobladder, or having a diversion. However, there is still urothelium within your ureters, in the kidney, and acidifying the entire system has not been harmful. Let's put it that way.

Probiotics, again, I use Visbiome particularly, also BioK+, which is a liquid form. You can buy capsules, but I would highly recommend getting on a site from what I referenced, actually look what's available and clinically proven. D-Mannose doesn't have that many trials, there is one randomized trial with really good results. It's very similar to sugar, and it's basically blocking the little arms and pili of the E.coli to stick to urothelial receptors.

There's also suppression or ... sorry, not suppression, but basically some supplements that they're able to use. People who have a bladder, again, Uqora has been successful for some of my patients, and it has kind of a similar composition that we would have in different supplements. Obviously, the dosing and their concentration is a proprietary information, but I have patients with bladders with frequent infections, who do well on Uqora.

SUPPRESSION

- Uqora – Target/Control/Promote (Ca, VitC, D mannose, Mg, B6, etc)
- If using catheters – try using Hydrophilic catheters, irrigation with NS
- Gentamycin instillation into bladder vs conduit via cone (480 mg in 1L NS)

- Uro-Vaxom (OM-89) preventive immunotherapy

Krisztina Emodi:

Neobladders, if you are catheterizing, very important not to reuse any catheters, trying to use hydrophilic catheters. These are your catheters that come, there's a little sleeve, everything is sterile and it's lubricated, depending on the concentration. But basically when you are pushing the catheter through, no part of the catheter is touched by your skin, and everything is as clean as possibly could be. Sometimes people with neobladders or the Indiana pouch, you need to irrigate. You need to irrigate your neobladder to irrigate the mucus out. You need to irrigate your Indiana pouch for better maintenance.

Gentamicin again, I've currently only installed for a neobladder, and currently I'm thinking of how to do this with an ileal conduit, with some of the complex scenarios I have. You can actually install the Gentamicin using a cone that they use for colostomy irrigations. Last but not least, this is not available in the United States, available some parts of Europe, the Uro-Vaxom, which is basically a preventive

immunotherapy capsule that has been very, very successful. Again, study people in bladders, however I think there's a lot of deductions that we are coming to over time, and when and how this will be available, I'm not sure. But the data I've seen from Europe is very, very promising with nearly an 80% reduction in recurrent UTIs in people. Thank you.

