THE CELIAC SOCIETY OF INDIA PRESENTS

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EDITOR'S NOTE



Dear Reader,

2020 has been a time of closures, pauses and new beginnings. The price we have paid for learnings during the pandemic has been enormous and unprecedented.

Yet, these learnings are worth their weight in gold. Who could have thought that one could work from home, live without eating out, enjoy small weddings over Zoom? Most importantly we learnt just how fragile life is and that no one is really in control.

The virus made no distinctions in its spread, and strangely enough, this somehow brought the world closer: a sort of sense of unity in uncertainty...

Among the important issues that arose were good health, immunity building and a need to eat clean. It has been aptly said: a man with good health has 1000 dreams. Take away his health and he has only one dream!

Our 2nd issue of *Wheat Views* addresses this issue in depth and explains the relationship of our gut health with immunity and wellbeing.

CSI also held two important webinars with experts across the globe that focused on the gut, Covid-19, vaccination and nutrition. To catch the video, *click here*. Do watch and share.

Enjoy & enrich your life!

Ishi Khosla

GUT FEELINGS

All disease begins in the (leaky) gut: the role of zonulin-mediated gut permeability in the pathogenesis of some chronic inflammatory diseases

Alessio Fasano



Il diseases begin in the gut —what Hipprocrates said 2500 years ago, has now become `an accepted truth `as we begin to understand the pathogenesis of many chronic inflammatory diseases (CIDs) afflicting mankind.

It comes as a late but a startling realisation: The recent changes in our lifestyle and environmental habits have changed and so has our focus on hygiene. These extra hygiene measures have limited our exposure to microorganisms, leading to more occurrences of chronic inflammatory diseases (especially in industrialized countries). Apart from the genetic makeup and exposure to environmental triggers, three additional contributors to the increasing cases of CIDs are listed as intestinal permeability, "hyper belligerent" immune system and the composition of gut microbiome and its epigenetic influence on the host genomic expression. Researches on human genetics, gut microbiome and proteomics suggest that the loss of mucosal barrier function, more precisely in the gastrointestinal tract, may affect antigen trafficking considerably, ultimately influencing the close bidirectional interaction between gut microbiome and our immune system. Such observations recommended a key pathogenic role of gut permeability for the rise in CIDs epidemic. Pre-clinical and clinical studies have shown that the zonulin family, a group of proteins modulating gut permeability, is implicated in a variety of CIDs, including autoimmune, infective, metabolic, and tumoral diseases.

This data offers novel therapeutic targets for a variety of CIDs in which the zonulin pathway is implicated in their pathogenesis. Zonulin, whose first member is pre-haptoglobin 2, is composed of a family of related proteins. Haptoglobins evolved from a complement-associated protein (mannose-binding lectin-associated serine protease, or

MASP) that lost its protease function because of mutations in the catalytic domain to then acquire new functions, including the capability to modulate intercellular TJs. The frequent zonulin

polymorphisms secondary to high mutation rate during evolution led to a family of structurally and functionally related zonulins, including pre-HP2 and properdin, another member of the MASP family.

The two most powerful triggers that can stimulate zonulin release are small exposure to large amounts of bacteria and gluten, secretion of which is followed by an increase in gut permeability secondary to the disassembly of the protein ZO-1 from the tight junction complex. Such findings suggest that once the zonulin pathway is activated, it represents a defensive mechanism that "flushes out" microbes, which leads to the innate immune response of the host against changes in the microbiome ecosystem. These findings are in line with the growing evidence on the role of changes in gut microbiome composition and function in causing functional changes in gut permeability, with subsequent increased Ag trafficking and break of tolerance leading to CID in genetically susceptible individuals.

It requires a mention that the modulation of intestinal permeability, including the zonulin pathway activation is part of the physiological machinery to maintain mucosal homeostasis and therefore does not always translate into clinical pathological outcomes.

With the appreciation that gut microbiome composition/function affect can intestinal permeability and vice versa and that loss of gut barrier function allows passage of endotoxin from gut lumen to systemic circulation, there are additional tools to be considered to monitor intestinal permeability. The presence of cytotoxic bacterial products in serum can be evaluated by using IgA/IgM responses to sonicated samples of common Gram-negative gut commensal bacteria, and assays of serum lipopolysaccharides (LPSs) and other bacterial toxins, including cytolethal distending toxin subunit B, provide good methods to screen for increased gut permeability in combination with IgM levels to zonulin and measuring gut dysbiosis.

There is growing evidence that the additional and mutually influenced elements of the triad of gut permeability, immune system, and gut microbiome—together with genetic predisposition and exposure to environmental triggers—make the "perfect storm" for CIDs development.

Besides genetic predisposition and exposure to environmental triggers, the pathogenesis of a variety of CIDs seems to involve mutually influenced changes in gut permeability/Ag trafficking, immune activation, and changes in composition/function of the gut microbiome.

Zonulin is a modulator of both epithelial and endothelial barrier functions and its role in health and disease remains an object of active research.

"Extra hygiene measures have limited our exposure to microorganisms, leading to more occurrences of chronic inflammatory diseases."

Gut dysbiosis may cause the release of zonulin leading to the passage of luminal contents across the epithelial barrier causing the release of proinflammatory cytokines that themselves cause increased permeability establishing a vicious loop leading to massive influx of dietary and microbial Ags triggering the activation of T cells.

Depending on the host genetic makeup, activated T cells may remain within the GI tract, causing CID of the gut (IBD, IBS, CD, and EED), or migrate to several different organs to cause systemic CID. The effect of the zonulin inhibitor larazotide acetate in mitigating inflammation both in animal models and in human clinical trials not only confirms the pathogenic role of zonulin in many CIDs but also opens the possibility of targeting gut permeability in a variety of CIDs in which a pathogenic role for zonulin has been hypothesized or proven.

CSI TALK SERIES

COVID-19 & THE GUT



The Celiac Society of India organized a webinar "Covid & the Gut" on December, 9, 2020. An interactive session with international experts and celebrities to discover the link between our gut, immunity and Covid-19. **To catch the video, click here.**

n the initial stages, only respiratory and cardiovascular symptoms of Covid were recognized. As time passed, other symptoms were quite common — Anorexia, pale abdomen, vomiting and diarrhoea to name a few. Studies from both China and Europe say that these GI symptoms antedated the symptoms of respiratory tract infection such as influenza. The concerning fact lies in the fact that patients with GI symptoms seem to have a more severe form of disease — they seem to have more people in the same family being affected. The virus clearance after Covid took longer in patients who had GI symptoms. Dr Ajay Bhalla suggests instead of a nasal swab, probably a rectal swab would be a better way to make policies for isolation. Agreeing with Dr Bhalla, Dr Neerja Hajela added her insight from reports that people who have had Covid-19 in Wuhan, also had a dysfunction of the gut. An interesting point: the viral RNA was found in in the anal swab of these patients. The Covid-19 virus attacks the ace-II receptors and these receptors are predominantly found in the intestine of the gut and the respiratory tract or in the lungs; this suggests making a case for the gut-lung access. As per the observations made by Dr Pankaj Verma, Covid patients are likely to have anorexia upto 80 percent.

"A link clearly seen now is that all those patients who are the so called 'susceptible group'- the elderly, obese and diabetic, all these patients have also been reported to have dysbiosis", mentioned Dr Bhalla. It can be said that people having abnormal microbiome or a problem with their gut are the same people who are having a more severe form of covid disease. Scientifically it is marked that people who are prone to dysbiosis produce a special extra protein such as ciliated protein which produces a severe form of disease. Dr Verma talked about the increase in IgE, IL18 levels in Covid patients which happens due to the increase in the number of pathogenic bacteria in the gut and the decline in the percentages of healthy bacteria like bifidobacteria, lactobacillus; number of unhealthy bacteria like streptococcus also increases, as a result of which the cytokine storm is activated.

Ultimately, the gut lung access becomes more inflamed. These conditions suggest the intake of light meals. and avoiding foods like tortilla (roti) or milk because of poor digesting capability. Liquid diets are recommended to help patients stay hydrated and compensate loss of liquid due to diarrhoea and vomiting. Probiotics and electrolye solution aid in fast recovery.

Gluten expert Dr Tom O'Bryan brought to light an interesting fact: people with celiac disease are at higher risk of developing an infection. The presence of co-morbidities like high blood pressure, or cardiovascular diseases, identified as an important predictor of morbidity associated with Covid-19, was more frequent in celiac disease than controlled subjects. What we know about celiac patients is that they tend to have a weaker immune system. If one has a weaker immune system, one of the parts of the immune system, called the IgA and secretory IgA, is more at risk of not working very well. Hence, celiacs are not at more risk of getting Covid but if they do get Covid they're at more risk of a severe problem. The study by Dr Alessio Fasano showed there was growing evidence that elements of gut permeability, immune response, and gut microbome - together with genetic predisposition and exposure to environmental triggers - make the 'perfect storm' for Chronic Inflammatory Disease development, which are -Genetic vulnerability, environmental triggers, altered microbiome (dysbiosis, intestinal permeability, systemic immune response. As shown by Dr Fasano's studies, the toll like receptor IV activates a transient leaky gut and the inflammation response of the immune system, whenever any harmful bacteria pass from stomach to small intestine. The reason wheat has a bad name lies in the fact that gluten activates toll like receptor IV and this happens in anyone ingesting gluten. Eventually, this inflammation is no longer transient, one doesn't heal, irrespective of age.

Nutritionist Ishi Khosla recommended the half-plate rule with a change: first fill the plate with vegetables, then add grains. She said that all colours need not be on the same plate. Instead, devote a complete meal towards protective food. All our spices, vegetables, fats give us polyphenols and phytonutrients that help in boosting our immunity. Chef Sanjeev Kapoor put forward alternatives for wheat such as ragi, bajra, quinoa. He recommended trying a new grain every day instead of limiting oneself to wheat.

Can Celiacs take a vaccine for Covid-19?

s scientists and clinicians who care for people with celiac disease, we urge people with celiac disease to receive a Covid-19 vaccine that has met government regulatory approval. This includes agents comprised of RNA (a vaccine technology that has been in development and has undergone safety testing for years) and peptide (protein) vaccines.

During the onset of the pandemic, there was a concern that people with celiac disease might be at an increased risk of severe outcomes from SARS-CoV-2 infection. Studies thus far, including international registry www. covidceliac.org, have indicated no increased risk of



severe outcomes. We share in the consensus belief by the public health community that mass vaccination is crucial. Celiac disease is not considered an allergy, and by itself does not prompt additional precaution when proceeding with vaccination. Patients with concerns about vaccination and their particular circumstance should speak with their health care provider. We urge our patients to undergo Covid-19 vaccination as soon as it is offered to them.

Source: Celiac Disease Foundation Society for the Study of Celiac Disease Releases Statement on COVID-19 Vaccination

GOOD EATING

WHAT'S COOKIN'?

This month: Gluten-free bread and Quinoa Chickpea pops

INGREDIENTS

White rice flour	1 cup
Tapioca starch	3/4 cup
Potato or arrowroot starch	3/4 cup
Millet or almond flour	1/2 cup
Ground flax seeds	1/4 cup
Xanthum gum	2 1/2 tsp
Baking powder	1 tsp
Salt	1 tsp
Oil of choice	1/4 cup
Egg whites	3
Apple cider vinegar	1 tsp
Water, between 95-110 F	11/4 cup
Sugar or honey	2 tbsp
Dry active yeast	2 1/4 tsp

METHOD

- Line a loaf pan with parchment paper, spray it with cooking spray; set it aside.
- Stir sugar and yeast with warm water; set it aside for 5-10 mins.
- Add the flours, flax seeds, xantham gum, baking powder, and salt. Mix just until combined.
- •Add the oil, egg whites, vinegar, and proofed yeast mixture.
- Turn mixer to medium speed, mix for extra 2 minutes till dough is thick and sticky.
- Using a rubber spatula, add the dough to the prepared loaf pan.
- Cover the dough with a lightly oiled piece of plastic wrap and allow it to rise in a warm place until it has risen slightly above the loaf pan.
- Preheat your oven to 350°F.
- Remove the plastic wrap and bake for 60-65 minutes. Half way through baking, cover the bread loaf with a piece of foil to keep it from over-browning.
- Remove the loaf from the oven and let cool completely before slicing.

CHICKPEA AND QUINOA BALLS

INGREDIENTS

Chickpeas	100 gm
Quinoa	100 gm
Parsley	1 tbsp
Mint	1 tbsp
Garlic	1/2 tbsp
Paprika	1/2 tbsp
Sumac powder	3/4 tsp
Salt	to taste
Black pepper	to taste
Virgin olive oil	3 tbsp
Tahini	1 tbsp



METHOD

- Parboil the chickpeas. Now grind to get a smooth paste.
- Bring the quinoa to boil
- Now, mix the boiled quinoa with the chickpeas. Also add the chopped parsley, mint, garlic, salt, pepper, paprika, and sumac. Mix well to combine the ingredients together.
- Add a little oil or water if required.
- Divide the mixtures into equal portions and shape the portions into small, round sized balls. Refrigerate the prepared balls for 15 minutes.
- Heat oil in a pan over medium flame and once the oil heats; add the quinoa-chickpea balls.
- Fry until golden brown.
- Remove from heat and serve hot with a dip or chutney.



FOOD FOR THOUGHT

Your diet is right when your plate looks like a rainbow... here's why you need to add some colours to your plate.

AIDS ANTI- INFLAMMATION	HELPS REPRODUCTIVE HEALTH	IMPROVES DIGESTION	HELPS CARDIOVASCULAR HEALTH	BOOSTS COGNITION
High in antioxidants and red-food carotenoids (e.g., astaxanthin and lycopene), anti- inflammatory properties, and immune system modulation (e.g., vitamin C). Source: https://www. hindawi.com/journals/ jnme/2019/2125070/ Vaccination	Abundant in carotenoids, endocrine- regulating activities, and role in fertility through support of processes such as ovulation.	Rich in fibres to support a complex microbiome and assist in maintaining gastrointestinal health through gastric motility and/or digestive secretions.	High in a variety of nutrients for cardiovascular health, such as vitamin K, folate, magnesium, potassium, and dietary nitrates.	Polyphenol-rich foods assist with learning, memory, and mood (flavonoids, procyanidins (monomeric and oligomeric form), flavonols (i.e., kaempferol, quercetin, and myricetin), phenolic acids (mainly hydroxycinnamic acids), and derivatives of stilbenes).

Word Search

Can you find these words in the puzzle?

PREBIOTIC INFLAMMATION DYSBIOSIS PROBIOTIC GLUTEN CELIAC IMMUNITY MICROBIOME GUT

Υ	0	R	Μ	С	I	Т	0	I	В	Ε	R	Ρ	G
Т	I	N	0	Ι	Т	Α	Μ	Μ	Α	L	F	N	I
Ι	Ι	Α	Ι	0	С	I	С	Ν	Т	D	Т	Ν	0
Ν	R	Α	Ι	D	Ι	R	0	Ν	Ε	0	0	В	0
U	Μ	0	В	Ρ	L	G	0	Ε	0	Т	С	Ι	С
Μ	0	В	Ι	R	Μ	Ε	Ι	В	D	Ι	U	Α	Μ
Μ	Ι	Ι	U	0	Ι	R	Ε	Ι	Ι	С	Т	L	Т
Ι	D	Y	S	В	Ι	0	S	Ι	S	0	Т	Ι	G
Ι	С	Ρ	F	Ι	Ι	Ι	L	U	G	Т	Μ	G	С
D	Ε	S	R	0	Ε	Ν	Ι	U	Y	Τ	С	Ε	В
Μ	Ι	Τ	С	Τ	Т	Τ	Ι	S	U	S	U	Ε	D
T	В	С	Α	Ι	L	Ε	С	Μ	Ι	Μ	Ι	G	R
0	Ι	Ι	Ι	С	В	S	L	Ι	0	Α	Ι	S	Μ
Ι	Т	R	Ι	Τ	Ν	Τ	Ι	R	S	С	Ε	Τ	Μ

GET INSPIRED

"I LOST 17KG In 1 YEAR"

A first-hand recount of how Gluten-Free Living changed this teacher's life!

am Mahima Ahuja (name changed), a teacher and also a patient of a list of health issues. After the birth of my first child I started gaining a lot of weight. The loss of both my parents just after my marriage (due to liver disease) added to my emotional dependence on food.

Eventually, even sleeping was an issue. I was put on insomnia medication. In 2012 I was clinically diagnosed with depression that added to my host of issues, (diseases of skin, arthritis, liver etc.) I was also taking anti-anxiety pills.

I was a chronic dieter while my BMI was 33. I also had chronic fatigue, water retention and bloating, and acidity issues as well. I came to know about Ms Ishi Khosla in October 2019. I was tired of visiting dieticians, but thought of giving a last chance to the self. My blood reports then showed I was low on magnesium, sodium and vitamin D, and high on uric acid, bilirubin and LDL; thyroid antibodies were highly elevated. I had poor immunity and herpes. My celiac markers were negative but I was intolerant to dairy and gluten!

Once I was put on a gluten-free and dairy-free diet with some supplements, I lost about 17 kg within a span of 1 year! Now I am off all the medications of anxiety and sleep deprivation. All my blood reports are back to normal after ages and I'm full of energy.

In between when I ate gluten I relapsed on my anxiety and weight gain, which was corrected within a few days. Today I'm happily leading a far better life and all credit goes to my dietician!



IN LOVING TRIBUTE

Dr Rajiv Khosla, a leading gastroenterologist of India passed away on December 11th. 2020.

Dr Khosla was one of the founder members of the Celiac Society of India. His passing away is an irreparable loss for the entire medical fraternity and for us.

He was a brilliant personality

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qualities. It has been an untimely end of a human being who touched the lives of everyone he met. His warm and jovial interaction with one and all alike makes his passing away difficult to accept.

His contribution to the Celiac Society of India was invaluable. His presence will be deeply missed by us all.

The Celiac Society of India presents its new website, found at celiacsocietyofindia.com. More information about ISWD 2019 can be found at iswd2019.com.

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