Gut Guardianship

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Abstract

In this communication, we define and describe gut guardianship as the processes, behaviours and activities that may be followed or undertaken, so as to achieve and maintain a healthy gut, and gut microbiome. These include aspects such related to nutrition, lifestyle, rational drug use, and microbial modulation by using prebiotics and probiotics. Gut guardianship helps in optimizing various aspects of human health including metabolic health, mitogenic balance, micronutrient absorption, mood (gaiety) maintenance, gut immunity, and general well-being.

Keywords: Antibiotics, microbiome, microflora, prebiotics, probiotics, proton pump inhibitors, rational drug use.

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The Gut Microbiome

The gut is an important part of the human body. Though the main function of this 5 - 8 meter long organ is to digest, absorb and assimilate nutrients, it serves many other purposes. The gut is known as the second gene pool, second nervous system, and second endocrine system of the body. This is because of the microflora that reside in the gut. The trillions of bacteria that make the human gut their home contribute to our genetic pool, produce neurotransmitters, and modulate metabolic and hormonal function.[1] This influences various aspects of human health including metabolic health, mitogenic balance, micronutrient absorption, mood (gaiety) maintenance, gut immunity, and general well-being.

Disturbances

The gut microbiome consists of live micro-organisms, which need adequate food and a healthy environment in order to survive. Unfortunately, the use of ultra-processed foods leads to a state of starvation for these microbiota.[2] This is because ultra-processed foods are devoid of the resistant starches and fermented products that form their nutrition. Yet another reason is consumption of chemicals, found as additives or flavouring agents in commonly consumed foods.

Another environmental hazard for the gut microbiome is the increasing use of drugs such as antibiotics, which may kill bacteria indiscriminately, and proton pump inhibitors, which alter the pH of the intestine and reduce the growth of acidophilic bacteria.[3] Knowing the advantages of having a healthy microbiome, and the challenges encountered in doing so, leads to the conceptualization of 'gut guardianship'.

Definition

We define and describe gut guardianship as the processes, behaviours and activities that may be followed or undertaken, so as to achieve and maintain a healthy gut, and gut microbiome. This builds upon the

Table: Gut Guardianship.

NUTRITION
• Eat balanced diet, with adequate roughage, avoiding extremely restricted diets.
• Avoid excessive ultra-processed foods
• Consume naturally fermented foods, such as curd, fermented rice/wheat preparations, fermented salads and pickles
LIFESTYLE
• Maintain a healthy lifestyle
• Ensure personal hygiene in all its aspects
• Ensure consumption of hygienic foods and beverages
PHARMACOVIGILANCE
• Ensure rational prescription and usage of all drugs, especially in gastrointestinal illnesses
• Minimize duration and dose of drugs which are known to harm gut microflora, e.g, proton pump inhibitors, broad spectrum antibiotics
• In case such drugs are necessary, practice pharmacovigilance and review their risk: benefit ratio at regular intervals
MICROBIAL MODULATION
• Consider usage of prebiotics and probiotics (synbiotics) as adjuvant therapy in people on long term therapy that may impact the gut microbiome
• Ensure that the preparations used have adequate diversity and strength of bacterial strains
• Ensure adequate duration of prebiotic and probiotic usage, keeping the specific indication in mind.

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characterization of gut micro-flora as "guardians of the gut,"[4] and reinforces the need to "guard our guardians." Gut guardianship is similar to antibiotic stewardship, insulin stewardship and steroid stewardship.[5] However, instead of a pharmacologically-centred attitude, it takes a comprehensive health-oriented approach, including rational use of pharmacotherapeutics.

Description

Gut stewardship has been practiced since antiquity in various forms. The Ayurvedic treatment of panchkarma, religious fasting, and ritual purging are all examples of procedures conducted for gut guardianship. In the Table, we list various lifestyle, dietary and pharmaceutical interventions that can be used as a part of gut guardianship. We hope that this communication will contribute to the understanding of gut guardianship. It should help motivate physicians, and the public at large, to take better care of their gut in general, and gut microbiome, in particular.

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