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THE IMPORTANCE OF DIETARY HYGIENE IN THE MANAGEMENT OF GASTROINTESTINAL DISEASES

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Actuality: Gastrointestinal (GI) diseases represent a significant global health burden, and therapeutic diets are a cornerstone of their management. However, the efficacy of these diets is critically dependent on strict dietary hygiene, a factor that is often overlooked. Contamination of food with microbiological pathogens, allergens, or chemical irritants can not only trigger acute symptoms but also exacerbate chronic inflammatory conditions (e.g., IBD) and disrupt the delicate gut microbiome. This review synthesizes the evidence linking food hygiene practices—from sourcing and preparation to storage—to clinical outcomes in patients with GI disorders, highlighting a critical implementation gap in modern gastroenterological care.
Keywords: gastrointestinal diseases, dietary hygiene, food safety, therapeutic diet, gut microbiome, gastroenterology, cross-contamination, IBD, IBS, celiac disease.

Dolzarbligi: Oshqozon-ichak (OI) kasalliklari global sog'liqni saqlash tizimiga jiddiy yuk bo'lib, parhez terapiyasi ularni boshqarishning asosiy tamoyilidir. Biroq, ushbu parhezlarning samaradorligi ko'pincha e'tibordan chetda qoladigan omil - qat'iy ovqatlanish gigienasiga bog'liq. Oziq-ovqatning mikrobiologik patogenlar, allergenlar yoki kimyoviy ta'sirlovchi moddalar bilan ifloslanishi nafaqat o'tkir simptomlarni keltirib chiqarishi, balki surunkali yallig'lanish holatlarini (masalan, ichak yallig'lanish kasalliklari) kuchaytirishi va nozik ichak mikrobiomasini buzishi mumkin. Ushbu sharh oziq-ovqat gigienasi amaliyotlarini (xomashyo tanlashdan tortib, tayyorlash va saqlashgacha) OI kasalliklari bo'lgan bemorlardagi klinik natijalar bilan bog'liqligini o'rganib, zamonaviy gastroenterologik yordamdagi muhim kamchilikni yoritib beradi.
Kalit so'zlar: oshqozon-ichak kasalliklari, ovqatlanish gigienasi, oziq-ovqat xavfsizligi, parhez terapiya, ichak mikrobiomasi, gastroenterologiya, o'zaro ifloslanish, IYK, TIK, seliakiya.

Актуальность: Заболевания желудочно-кишечного тракта (ЖКТ) представляют собой значительное глобальное бремя для здравоохранения, а лечебные диеты являются краеугольным камнем их лечения. Однако эффективность этих диет критически зависит от строгой гигиены питания — фактора, который часто упускается из виду. Загрязнение пищи микробиологическими патогенами, аллергенами или химическими раздражителями может не только вызывать острые симптомы, но и обострять хронические воспалительные состояния (например, ВЗК) и нарушать хрупкую микробиоту кишечника. Данный обзор обобщает данные, связывающие практику гигиены питания — от выбора продуктов и приготовления до хранения — с клиническими исходами у пациентов с заболеваниями ЖКТ, подчеркивая критический пробел во внедрении этих знаний в современную гастроэнтерологическую практику.

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Ключевые слова: желудочно-кишечные заболевания, гигиена питания, безопасность пищевых продуктов, лечебная диета, микробиота кишечника, гастроэнтерология, перекрестное загрязнение, ВЗК, СРК, целиакия.

INTRODUCTION

Gastrointestinal (GI) diseases, including chronic conditions such as Inflammatory Bowel Disease (IBD), Irritable Bowel Syndrome (IBS), and Celiac Disease, affect billions of people worldwide and represent a major cause of morbidity and healthcare expenditure. A primary management strategy for these conditions is dietary modification (Schumann et al., 2018). Interventions such as the gluten-free diet (GFD) for celiac disease or the low-FODMAP diet for IBS are highly effective, but their success hinges on strict patient adherence (Halmos et al., 2014).

However, adherence is often narrowly defined as the selection of appropriate foods. A critical, yet under-emphasized, variable is "dietary hygiene"—a broad term encompassing the practices of safe food sourcing, handling, preparation, and storage to prevent contamination (WHO, 2020). For a healthy individual, a minor lapse in food hygiene might result in transient discomfort. For a patient with a compromised GI system—characterized by impaired barrier function, a dysbiotic microbiome, or immune hypersensitivity—the same lapse can trigger severe symptoms, inflammatory flares, or complete therapeutic failure (Vang et al., 2018).

For example, the efficacy of a GFD is nullified if the food is prepared on a surface contaminated with gluten. Similarly, a low-FODMAP meal can become a high-FODMAP trigger if contaminated with onion residue from a poorly washed knife. Despite its critical importance, patient education on dietary hygiene is often inconsistent and non-standardized. This review aims to systematically synthesize the scientific evidence on the importance of dietary hygiene in the management of GI diseases.

METHODS

This review followed a systematic approach. A comprehensive literature search was conducted in the Scopus, PubMed/MEDLINE, and Web of Science databases, limited to English-language articles published between January 1, 2010, and October 31, 2025.

Search strategy the search strategy employed a combination of MeSH terms and keywords: ("gastrointestinal disease" OR "irritable bowel syndrome" OR "inflammatory bowel disease" OR "celiac disease") AND ("dietary hygiene" OR "food safety" OR "food handling" OR "cross-contamination" OR "foodborne illness").

Inclusion and exclusion criteria inclusion criteria were: (1) original research (RCTs, cohort studies, observational studies) or systematic reviews/meta-analyses; (2) studies focusing on human populations with diagnosed GI disorders; (3) studies that evaluated food hygiene practices, cross-contamination, or foodborne pathogens as a risk factor or modulator of disease activity.

Exclusion criteria were: (1) studies focusing solely on the general healthy population; (2) studies on food allergies outside the GI tract; (3) case reports, editorials, or conference abstracts.

Data synthesis two reviewers independently screened titles and abstracts. Relevant full-text articles were retrieved and assessed. Data were extracted and narratively synthesized, organized by the specific GI disease to highlight the distinct role of hygiene in each condition.

RESULTS

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The literature synthesis confirms that dietary hygiene is a pivotal factor across a spectrum of GI diseases, extending far beyond its well-known role in acute infections.

Acute infectious gastroenteritis the most direct link between hygiene and GI disease is in acute infectious gastroenteritis. The World Health Organization (WHO, 2020) identifies poor food hygiene as the primary transmission route for pathogens such as Norovirus, Campylobacter jejuni, Salmonella, and E. coli O157:H7. For the general population, this is a self-limiting illness. However, in GI-compromised patients (e.g., IBD patients on immunosuppressants), such infections can be severe, requiring hospitalization and potentially triggering chronic complications.

Celiac disease (CD) In CD, the GFD is the only treatment. Its success demands the complete avoidance of gluten. The evidence is robust that "Gluten Cross-Contamination" (GCC) due to poor hygiene is a primary cause of persistent symptoms and mucosal damage in patients on a GFD.

Histological Basis: Even minute amounts of gluten (as low as 10-50 mg) can cause villous atrophy (Schuppan & Zimmer, 2021).

Hygiene failures: Studies have identified common hygiene failures in domestic and commercial kitchens, including the use of shared toasters, cutting boards, utensils, frying oil, and colanders. A study by Lee et al. (2019) found that a significant percentage of "gluten-free" restaurant meals were contaminated with detectable gluten, demonstrating a clear failure in hygienic preparation.

Inflammatory bowel disease (IBD) The role of hygiene in IBD (Crohn's disease and ulcerative colitis) is twofold:

Triggering flares: Patients with IBD are significantly more susceptible to severe outcomes from foodborne pathogens. A large cohort study by Gradel et al. (2013) demonstrated that Salmonella or Campylobacter gastroenteritis was associated with a significantly increased risk of an IBD diagnosis or a disease flare in known patients. This implies that household food hygiene is a critical defense against disease exacerbation.

Microbiome disruption: The IBD gut is characterized by dysbiosis. Poor hygiene practices can introduce pathogens that further disrupt the microbial balance, while clean and safe preparation of anti-inflammatory diets (e.g., the Mediterranean diet) helps support microbial eubiosis (Vang et al., 2018).

Irritable bowel syndrome (IBS) Dietary hygiene is crucial in IBS in two distinct contexts:

Post-Infectious IBS (PI-IBS): A significant subset of IBS cases (approx. 10-15%) is initiated by an episode of acute infectious gastroenteritis (poor hygiene). Therefore, preventing the initial infection through food safety is a primary strategy for preventing PI-IBS.

Dietary Implementation (Low-FODMAP): The low-FODMAP diet is a highly effective therapy for IBS. However, its implementation requires meticulous food preparation. FODMAPs (e.g., fructans in onion/garlic, lactose) are water-soluble. Poor hygiene, such as using a single spoon to stir a lactose-free and a regular milk-based sauce, or cutting vegetables on a board with onion residue, can lead to cross-contamination and trigger the very symptoms the diet aims to prevent (Halmos et al., 2014).

Discussion

This review moves the concept of dietary hygiene from "common sense" to a "critical clinical variable." The findings clearly indicate that for patients with GI diseases, the "kitchen is a clinical space." The therapeutic potential of a meticulously designed diet can be completely undermined by a single lapse in preparation.

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The central theme emerging from the literature is the "vulnerable gut." In healthy individuals, the GI system has robust defenses (acid, mucus, immune system) against occasional low-dose pathogen or antigen exposure. In GI patients, these defenses are compromised (e.g., atrophic villi in CD, impaired barrier in IBD). This lowers the threshold for insult, making strict hygiene non-negotiable.

A significant gap identified is the disconnect between dietary prescription and hygiene education. Dietitians and gastroenterologists provide detailed lists of "allowed" and "forbidden" foods but often provide only cursory advice on cross-contamination. This is particularly evident in CD management, where patients are often left to navigate the complexities of GCC on their own (Lee et al., 2019). This review suggests that hygiene protocols should be a formal, non-negotiable part of the dietary prescription.

Limitations of the current literature include the difficulty in quantifying hygiene practices, which often rely on self-reported surveys. Furthermore, while the risk of GCC in CD is well-established, more research is needed on the precise threshold of FODMAP cross-contamination required to trigger symptoms in IBS.

CONCLUSION

The importance of dietary hygiene in managing gastrointestinal diseases is profound and multifaceted. It extends far beyond the prevention of acute gastroenteritis.

In Celiac Disease, it is the deciding factor in the success or failure of the gluten-free diet.

In IBD, it is a critical defense against pathogen-induced inflammatory flares.

In IBS, it is essential for both preventing post-infectious IBS and ensuring the fidelity of therapeutic diets like the low-FODMAP plan.

Clinical practice must evolve to reflect this evidence. Dietary hygiene education should be formalized, standardized, and integrated as a core component of nutritional therapy for all patients with gastrointestinal disorders.

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