While irritable bowel syndrome (IBS) is one of the most common conditions encountered in gastroenterology and primary care practices, treatment of IBS remains a challenge for many physicians. In conjunction with IBS Awareness Month in April, the Gastroenterological Society of Singapore organized a symposium on IBS supported by LF Asia. The well-attended meeting convened experts who discussed the prevalence and management of IBS, with a focus on probiotics.

**IBS Epidemiology and Pathogenesis**

Dr Ling Khoon Lin
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IBS is a condition characterized by abdominal pain, bloating or other discomfort occurring in association with disturbed bowel pattern in the absence of organic causes that can be detected by routine medical tests. The reported prevalence of IBS in Asian countries varies from 2.9% to 15.6%, but the study population and diagnostic criteria were not consistent. Diagnostic criteria used in different studies included the Rome II, Rome III and Manning criteria. Using the Rome II criteria, the prevalence in Singapore is 8.6%. In addition, differences in language, socio-cultural perceptions and symptom reporting in Asia complicates the diagnosis of IBS, as diagnosis largely depends on the patients’ descriptions and clinicians’ interpretation of symptoms. In order to simplify diagnosis at the primary care level, the Asian IBS consensus report developed a screening algorithm which comprises symptom criteria (Table 1), a checklist of alarm features (Table 2) and guidelines on monitoring. While the exact pathogenesis of IBS is unknown, the current theory implicates a combination of genetic factors, gut infections, brain–gut interactions, and psychological disturbance. Researchers also recognize that dysbiosis is associated with IBS symptoms. Pranic clinical studies suggest that gut microbiota and their metabolic products influence intestinal permeability, immune function, activity in the enteric nervous system, the hypothalamic-pituitary-adrenal axis, pain modulation systems and the brain. In view of this, the gut microbiome has become a promising target for therapeutic interventions for IBS.

**IBS in Primary Care Setting: Case Studies and Practical Guidance from the Asian Consensus**

Dr Gwee Kok Ann
Consultant Gastroenterologist
Gleneagles Hospital

**CASE STUDY 1**

24 year old Chinese Female

**SYMPTOMS:** Fullness after meals, frequent belching and heartburn in the past 6 months

**INVESTIGATION:** Upper GI endoscopy: non-erosive gastritis, H. pylori (+)

**TREATMENT:** omeprazole 20mg daily, domperidone 10mg three times daily, STAT: twice a day to once in 2 days

**BRISTOL STOOL SCALE:** Type 3, occasionally type 2

**CHIEF COMPLAINT:** Usually feels incomplete evacuation, recently increasing flatulence.

**DISCUSSION:** A substantial proportion of Asian patients with functional dyspepsia (FD) has overlapping IBS. A Taiwanese study found that more than 50% of patients diagnosed with dyspepsia had IBS. The role of gastrocolic reflex may explain post-prandial IBS symptoms, which up to 73% of IBS patients experience.

**Evidence indicates that patients with IBS tend to respond poorly to proton pump inhibitors (PPI).** Asian experts agree that high-dose PPI therapy is not superior to standard doses for symptom control in dyspepsia.

**QUESTION 1.** How long should IBS patients continue taking PPIs?

**ANSWER:** There have been no specific studies on this. On average, patients live in the intestine for 2 weeks, and can be taken continuously to maintain their pH-dependent release, which protects the probiotics against heat and moisture during manufacturing, transport and during oral administration is a constant challenge. Probiotics may be adversely affected by exposure to oxygen, high temperatures, moisture, gastric acids, digestive enzymes and bile salts. Some brands of probiotics require refrigeration to maintain stability, which is inconvenient for supply and storage.

**Case 2.** A 40 year old Chinese Male

**CHIEF COMPLAINT:** Abdominal pain after meal, with urgent bowel movements, difficult to control. Avoids breakfast, coffee and milk, Lost 2 kg in the last month. Loperamide controls diarrhoea but more uncomfortable.

**DISCUSSION:** Patients presenting with alarm features (Table 2, above), should be referred to a gastroenterologist for investigation.

**TABLE 2.** Alarm features requiring gastroenterological referral

<table>
<thead>
<tr>
<th>Feature</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Age greater than 45 years</td>
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<tr>
<td>Blood in stool</td>
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<tr>
<td>Unintended weight loss</td>
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<tr>
<td>Nocturnal symptoms</td>
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<tr>
<td>Fever</td>
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<td>Abdominal mass</td>
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<tr>
<td>Acalculia</td>
<td></td>
</tr>
<tr>
<td>History of colorectal cancer</td>
<td></td>
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<tr>
<td>Presence of anaemia</td>
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</tbody>
</table>

**QUESTION 2.** Given the wide range and varied brands of probiotics available, how do physicians select the most appropriate one for patients?

**ANSWER:** Different strains of probiotics have different effects, and this is also affected by varied host (patient) characteristics. The dose and number of colonies may not be indicative of its consequent effectiveness; delivery to the target area and ability to colonize the gut is also important. For example, a product with high cultu counts was found to clump together in the gut and was passed out whole, rendering it ineffective. Physicians should select probiotics which have evidence of efficacy against the specific condition being treated, for example, DUOLAC Daily Vitality® for IBS. The dual-coating and pH-dependent release protects the probiotics against acid exposure and allows maximum delivery to the small intestine while tolerating the harsh conditions of the stomach.

**Expert-to-Expert Dialogue**

Dr Ling Khoon Lin
Senior Consultant and Head
Department of Gastroenterology & Hepatology
Singapore General Hospital

**QUESTION 1.** How long should IBS patients continue taking probiotics?

**ANSWER:** There have not been specific studies on this. On average, probiotics live in the intestine for 2 weeks, and can be taken continuously to maintain population levels in the gut. However, in clinical practice, probiotics are usually given as a course for 4 weeks and re-started when symptoms return.

**TABLE 1.** Symptoms of possible IBS

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Definition</th>
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<tr>
<td>Recurrent abdominal pain, bloating, or other discomfort for ≥3 months associated with 1 or more of the following:</td>
<td>relief with defeation, change in stool form (show patient the Bristol Stool Scale), change in stool frequency</td>
</tr>
</tbody>
</table>

**Next Frontier in Probiotic Technology Development and its Impact in IBS**

Dr Seo Jae-Gu
Principle Researcher
Cell Biotech Co., Ltd

Probiotics are live micro-organisms which, when administered in adequate amounts, confer a health benefit on the host. Due to their beneficial effects on gut microbiota, probiotics have been used in IBS, SIBO, IBD, diarrhea and acute gastroenteritis.

Evidence suggests that multi-strain probiotics have greater efficacy than single strains. Microbes have different niches in the GI tract; Lactobacillus species are largely effective in the small intestine while Bifidobacterium species work best in the colon. Maintaining stability of probiotics during manufacturing, transport and during oral administration is a constant challenge. Probiotics may be adversely affected by exposure to oxygen, high temperatures, moisture, gastric acids, digestive enzymes and bile salts. Some brands of probiotics require refrigeration to maintain stability, which is inconvenient for supply and storage. Cell Biotech patented a dual-coating technology to overcome these challenges. It confers excellent stability without requiring refrigeration, protecting the probiotics against heat and moisture during manufacturing and transport, leading to better survivability of the probiotic strains. Room temperature stored-probiotics showed lag times shorter than those of the corresponding species stored at 4°C. In the body, the dual-coating system enables pH-dependent release, which hosts probiotics against gastric acids and bile salts. This allows maximum delivery to the small intestine and colon which has a pH of 6-7, where they start colonizing the intestines.

**QUESTION 3.** How long should IBS patients take probiotics?

**ANSWER:** Usually 4-6 weeks and re-started when symptoms return.

**PROCOAT DUOLAC®**

DUOLAC® is a multi-strain probiotics product that is effective in reducing bloating and diarrhea, while improving stool consistency in IBS patients.

**SUMMARY**

As IBS is a multifactorial condition requiring individualized and combination treatment, diagnosis and management remains challenging. An imbalance of gut microbiota is frequently implicated, and probiotics are a promising therapeutic intervention for management of IBS. DUOLAC®, a multi-strain live probiotics product, effectively reduces IBS symptoms and alters the composition of intestinal microbiota.

**FIGURE 1.** Proportion of patients who achieved global relief of IBS in the probiotics and placebo groups

A randomized, double-blind, placebo-controlled trial investigated the efficacy of a double-coated multi-species probiotics in 49 IBS patients. Patients either consumed DUOLAC® (Bifidobacterium longum, B. bifidum, B. lactis, Lactobacillus acidophilus, L. rhamnosus, and Streptococcus thermophilus) or placebo twice daily. After 4 weeks, significantly more patients in the probiotics arm had improvement in IBS symptoms compared to the placebo arm (68.0% vs. 37.5%; p=0.03) (Figure 1). Improvement in abdominal pain/discomfort and bloating occurred in the probiotic group but not in the placebo group. Fecal samples indicated that the probiotics altered the composition of intestinal microbiota as B. lactis, L. rhamnosus, and S. thermophilus had increased significantly in the probiotic group.

**REFERENCES**