

FODMAP diets
(Fermentable Oligo-, Di-, Mono-
sAccharides and Polyols)
for
Irritable Bowel Syndrome

What is irritable bowel syndrome (IBS)?

The Rome III Criteria

At least 3 months, onset at least 6 months before, of recurrent abdominal pain or discomfort, associated with 2 or more of:

- Improvement with defecation; and/or
- Onset associated with a change in frequency of stool; and/or
- Onset associated with a change in form (appearance) of stool



Alarm symptoms should not be present



- Pain that awakens/interferes with sleep
- Diarrhea that awakens/interferes with sleep
- Blood in the stool (visible or occult)
- Weight loss
- Fever
- Abnormal physical examination

Our patient did not have any alarm symptom

What is the diagnosis?

Irritable bowel syndrome

What are the subtypes of IBS?

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graph TD; A([What are the subtypes of IBS?]) --> B((IBS-C)); A --> C((IBS-D)); A --> D((IBS-M)); A --> E((IBS-A));
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IBS-C

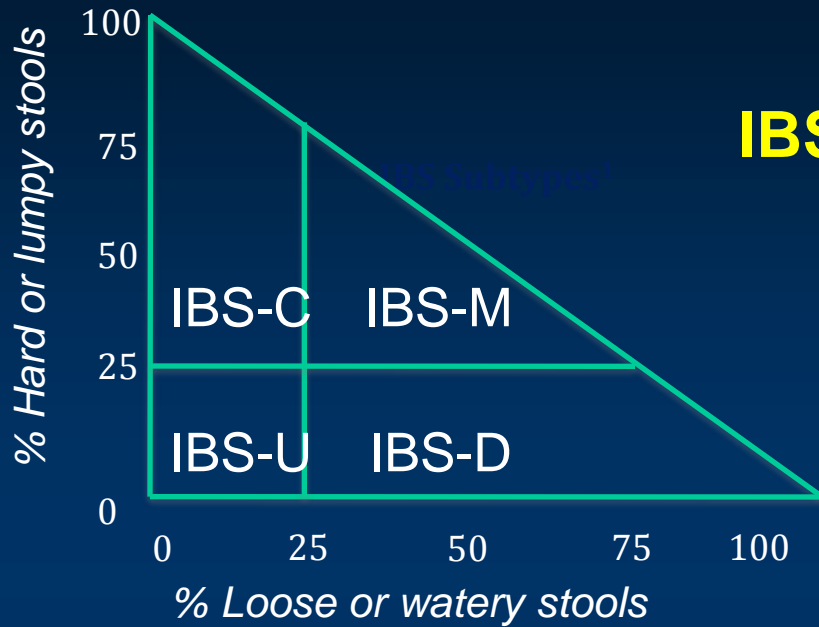
IBS-D

IBS-M

IBS-A

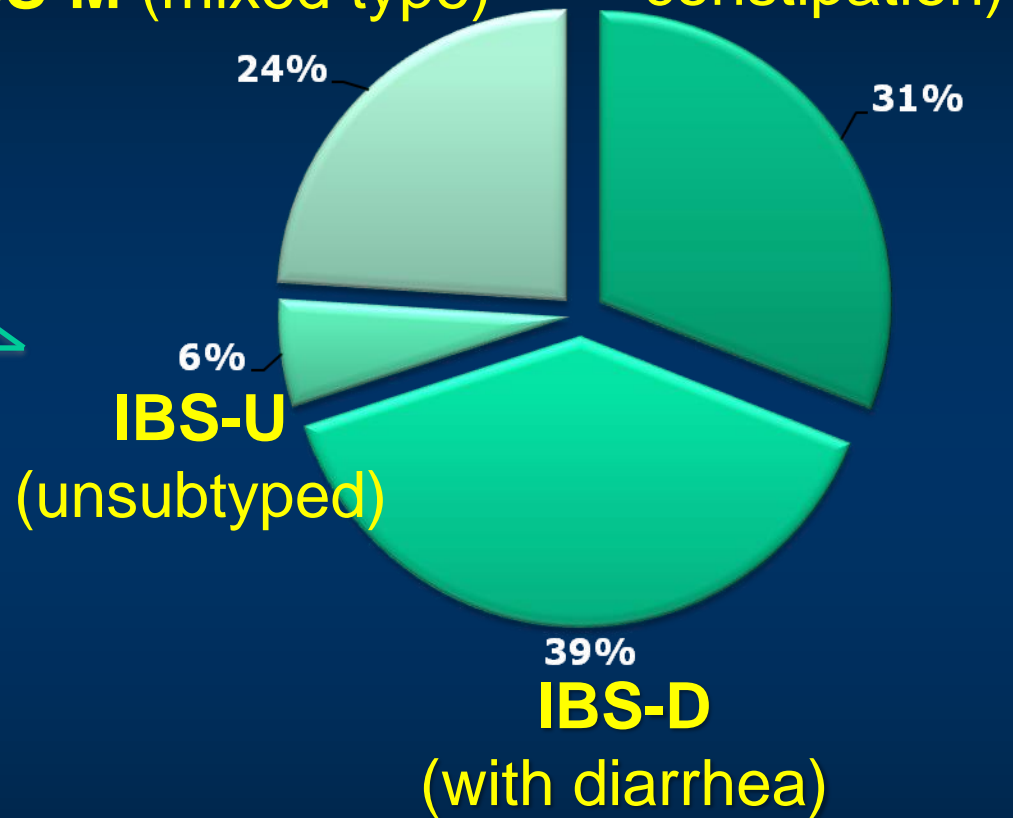
Our patient had IBS-A

IBS subtypes

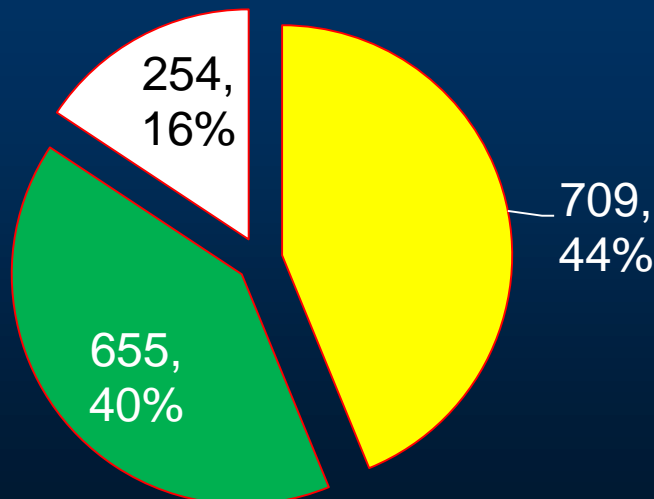


IBS-M (mixed type)

IBS-C (with constipation)



Indian data



1 Spiller RC et al. *Am J Gastroenterol* 2010; 105: 775-785

2 Eysyrd et al, *Aliment Pharmacol Ther* 2007; 26(6): 953-961

3 Spiller et al, *Gut* 2007; 56: 1770-1798

Story of a patient



28-y old MD G&O doctor doing PG in Hyderabad

- Abdominal discomfort & feeling of distension 3-4 y
- Flatulence
- Irregular stool form & frequency
- Mucus
- Incomplete evacuation

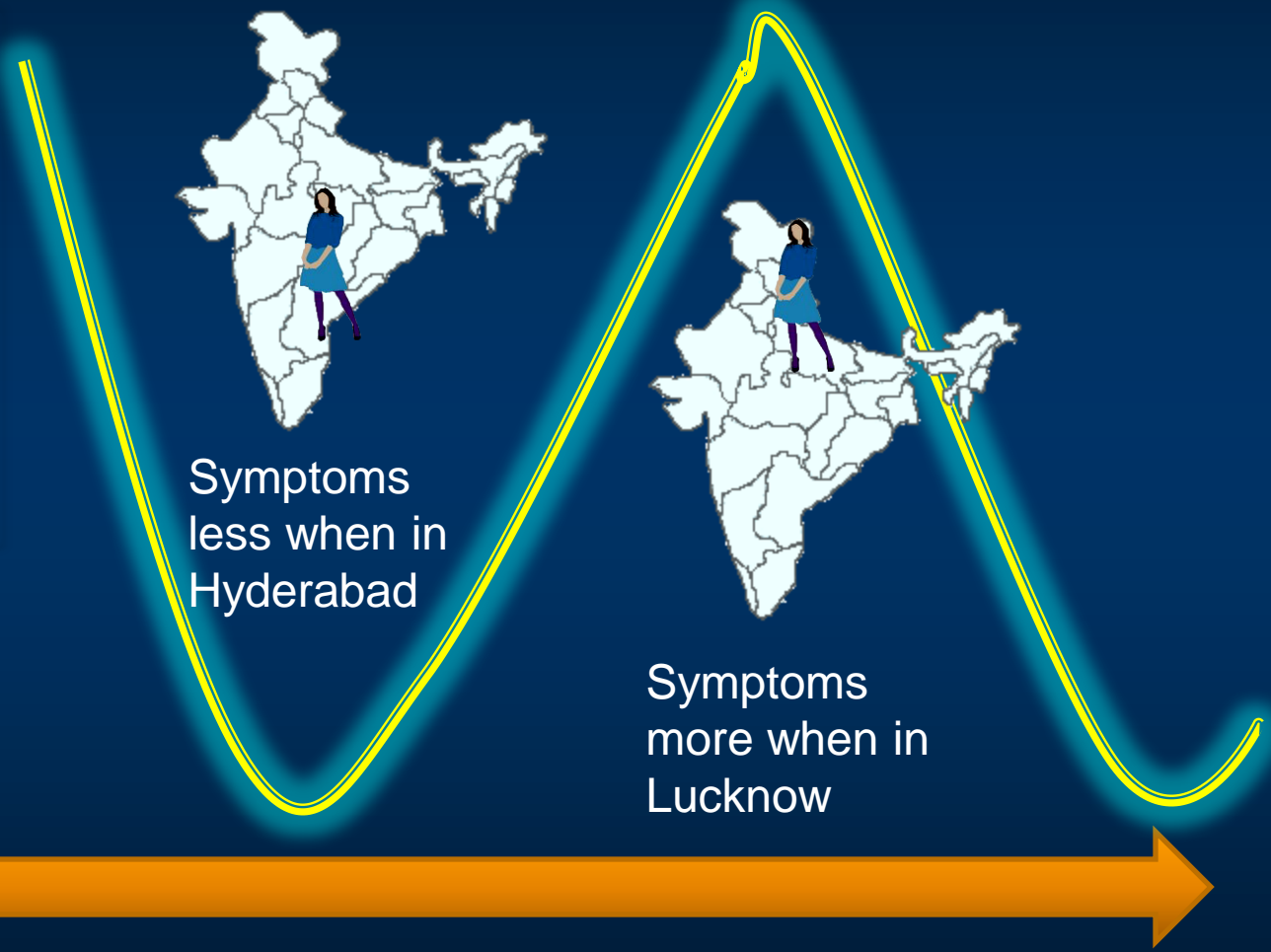


Variability of symptoms



28-y old MD G&O doctor doing PG in Hyderabad

- Abdominal discomfort & feeling of distension 3-4 y
- Flatulence
- Irregular stool form & frequency
- Mucus
- Incomplete evacuation



What could be the explanation for variability in symptoms?

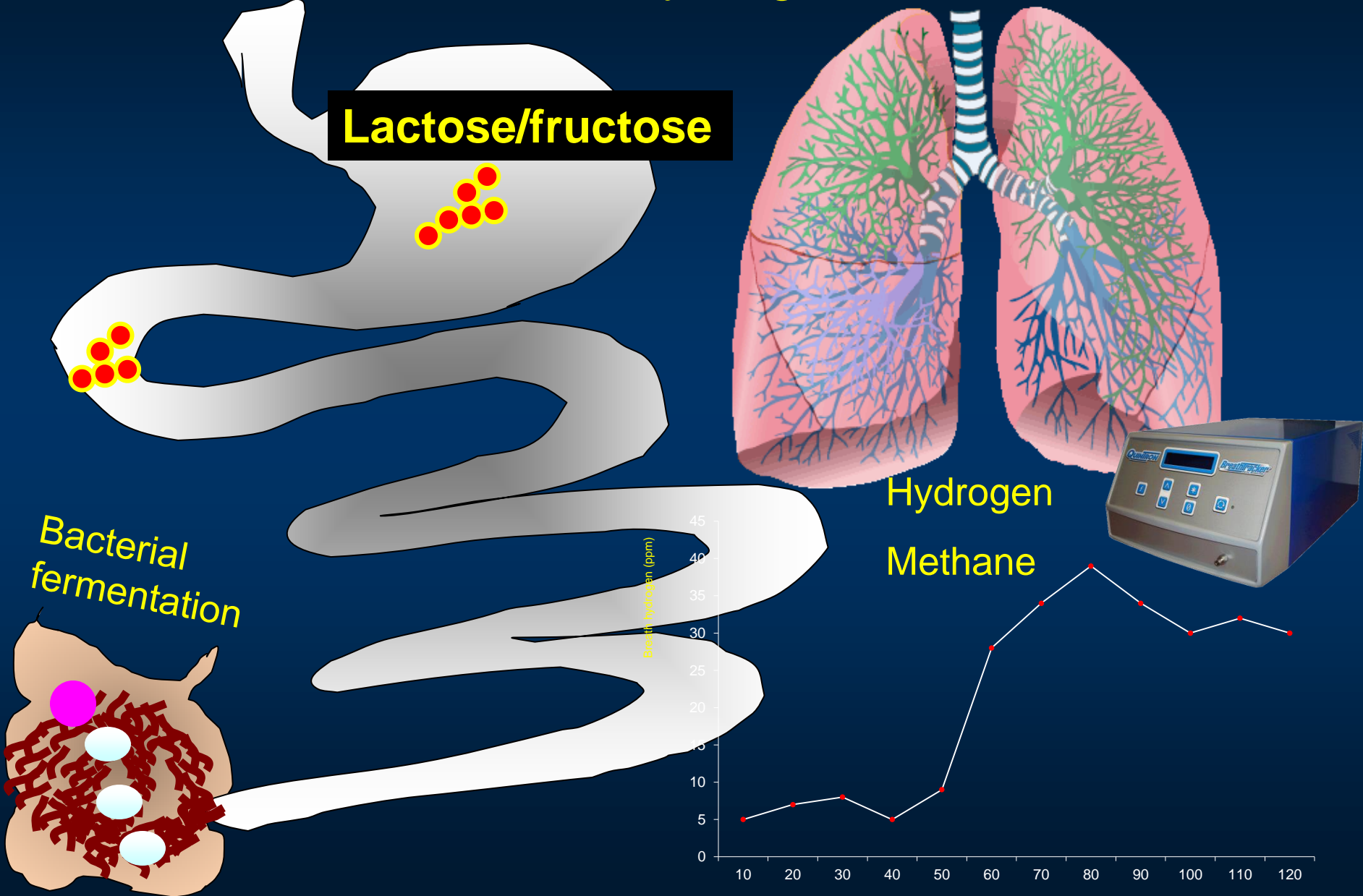
- Variability in stress levels in hostel and in home
- Not a tenable explanation as
 - Stress is expected to be less at home than in hostel
 - She denied having much stress in either place
 - She disliked consultation with several physicians who sent her to psychiatrists
- Dietary variation
 - Rice-based diet in southern India
 - Wheat-based diet in northern India
 - She reported that she loves “chapati” and “paneer” and her mother gives plenty of these at home

Further course of this patient

- Lactose hydrogen breath test and lactose tolerance test revealed lactose malabsorption
- Fructose hydrogen breath test revealed fructose malabsorption as well

Diagnosis of lactose/fructose malabsorption

Lactose/fructose hydrogen breath test



Lactose tolerance test

Fasting blood sugar (BS)



30 min after 50 g of
Lactose ingestion

BS <20 mg% above
fasting at 30 minutes

Issues in this patient

- Improved on withdrawal of milk and milk products and preference of rice over wheat
- One has to be aware about hidden lactose in several food products
- Issues on lactose malabsorption and wheat/gluten sensitivity will be discussed

Up to a third of the World population reports GI Symptoms

Heartburn

Early satiety,
nausea

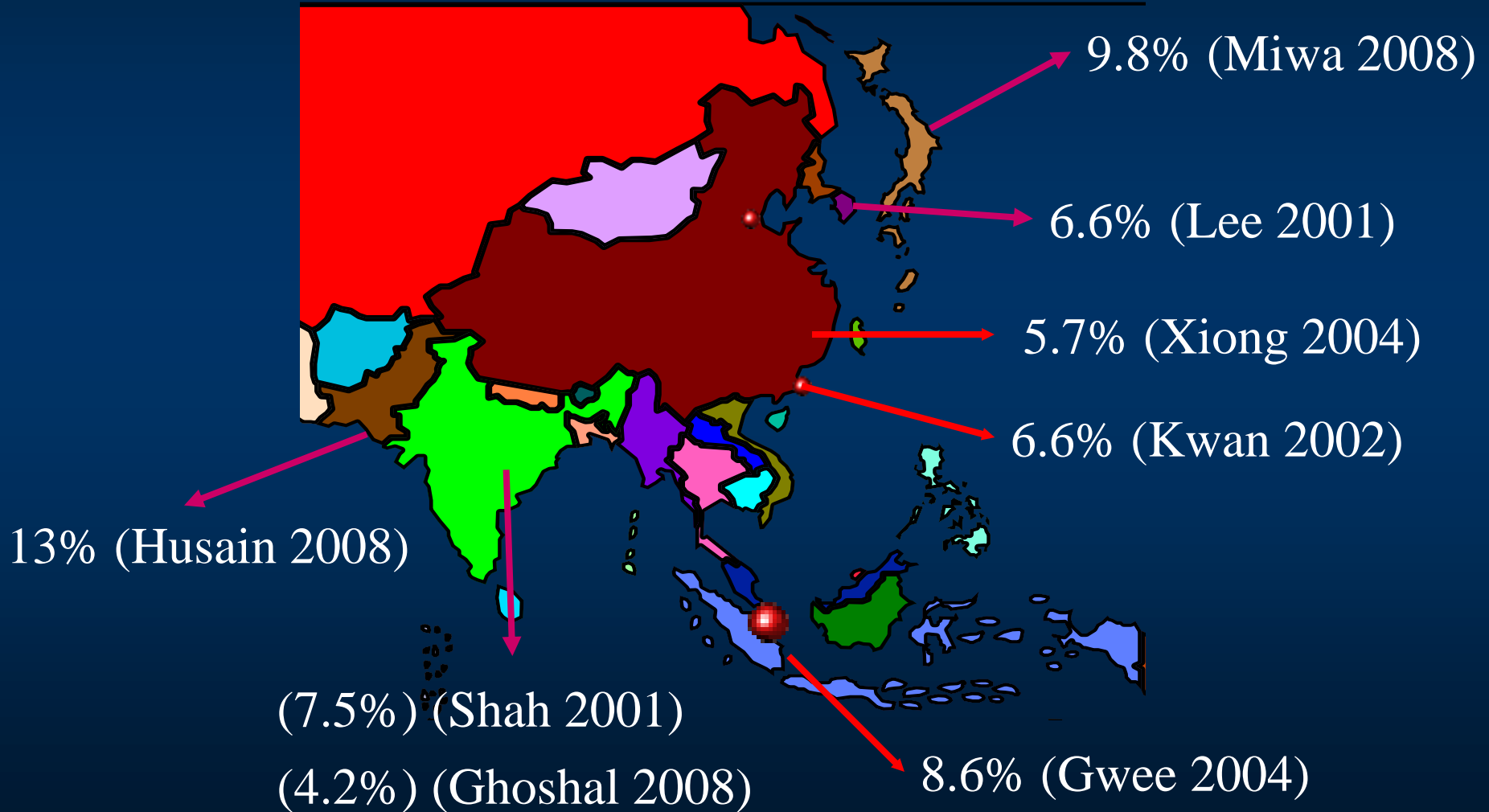
Abdominal
pain /
bloating

Constipation

Diarrhea



IBS in Asia

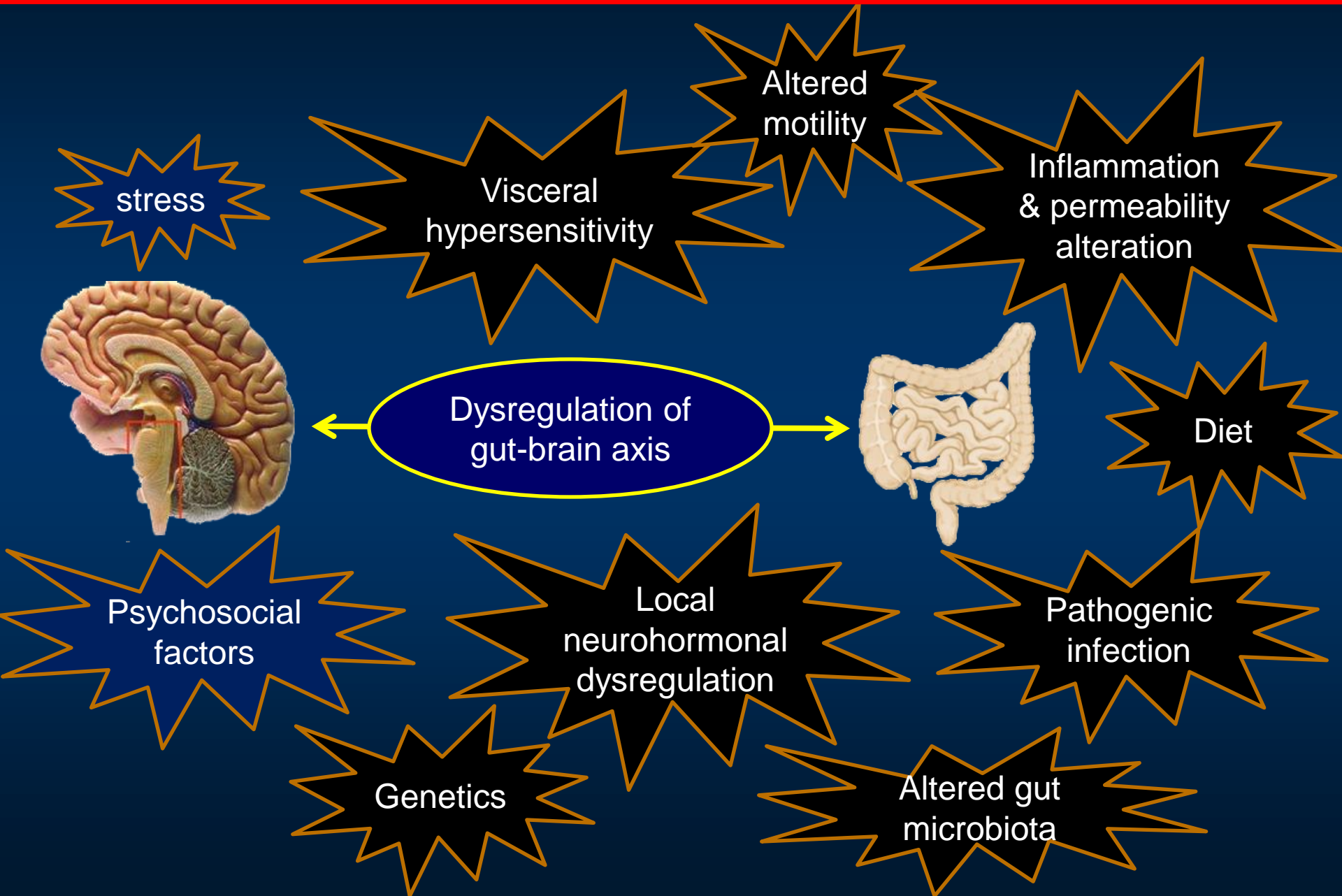


The common view of FGID



- The term ‘functional’ is often improperly interpreted as ‘idiopathic’ or ‘cryptogenetic’
- Patients labelled as *neurotic, apprehensive,* otherwise healthy individuals with *an imaginary disease*

Pathogenesis of IBS



Diet: Clinician performance

- Smaller and more frequent meals
- Low fat meal
- Avoidance of smoking/alcohol/caffeine
- Avoidance of NSAIDs
- Avoidance of carbonated drinks
- Avoidance of 'irritating food'
- Survey of Practices of Clinicians in the Asia Pacific Region
 - 95% dispensed lifestyle or dietary advice to functional dyspepsia patients
 - 79% dispensed lifestyle or dietary advice to IBS patients

Diet: Questions in patients' mind

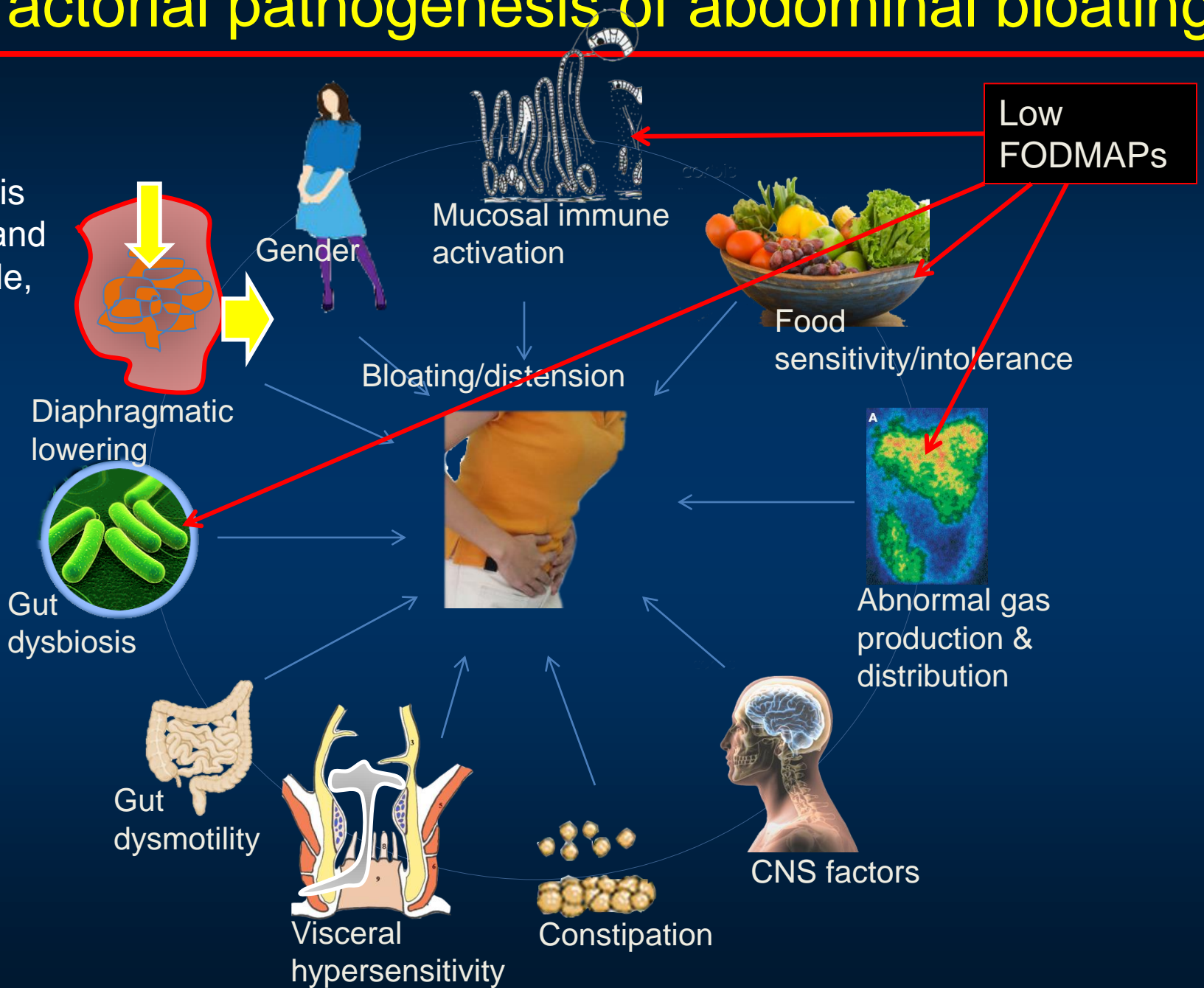
- What food should I avoid?
- What can I eat?
- Should I eat more fibre?
- Can I drink milk?
- How to reduce bloating?
- What causes gas?



Patients with IBS FREQUENTLY complain that their symptoms are triggered by food

Multifactorial pathogenesis of abdominal bloating

Feeling of abdominal distension is "bloating" and when visible, it is called distension



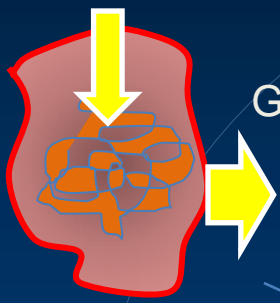
Low FODMAPs



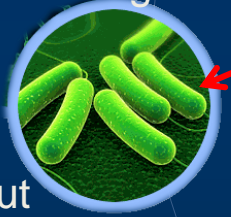
Mucosal immune activation



Food sensitivity/intolerance



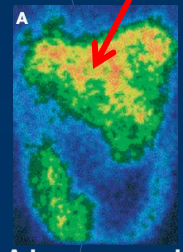
Diaphragmatic lowering



Gut dysbiosis



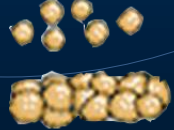
Bloating/distension



Abnormal gas production & distribution



CNS factors



Constipation

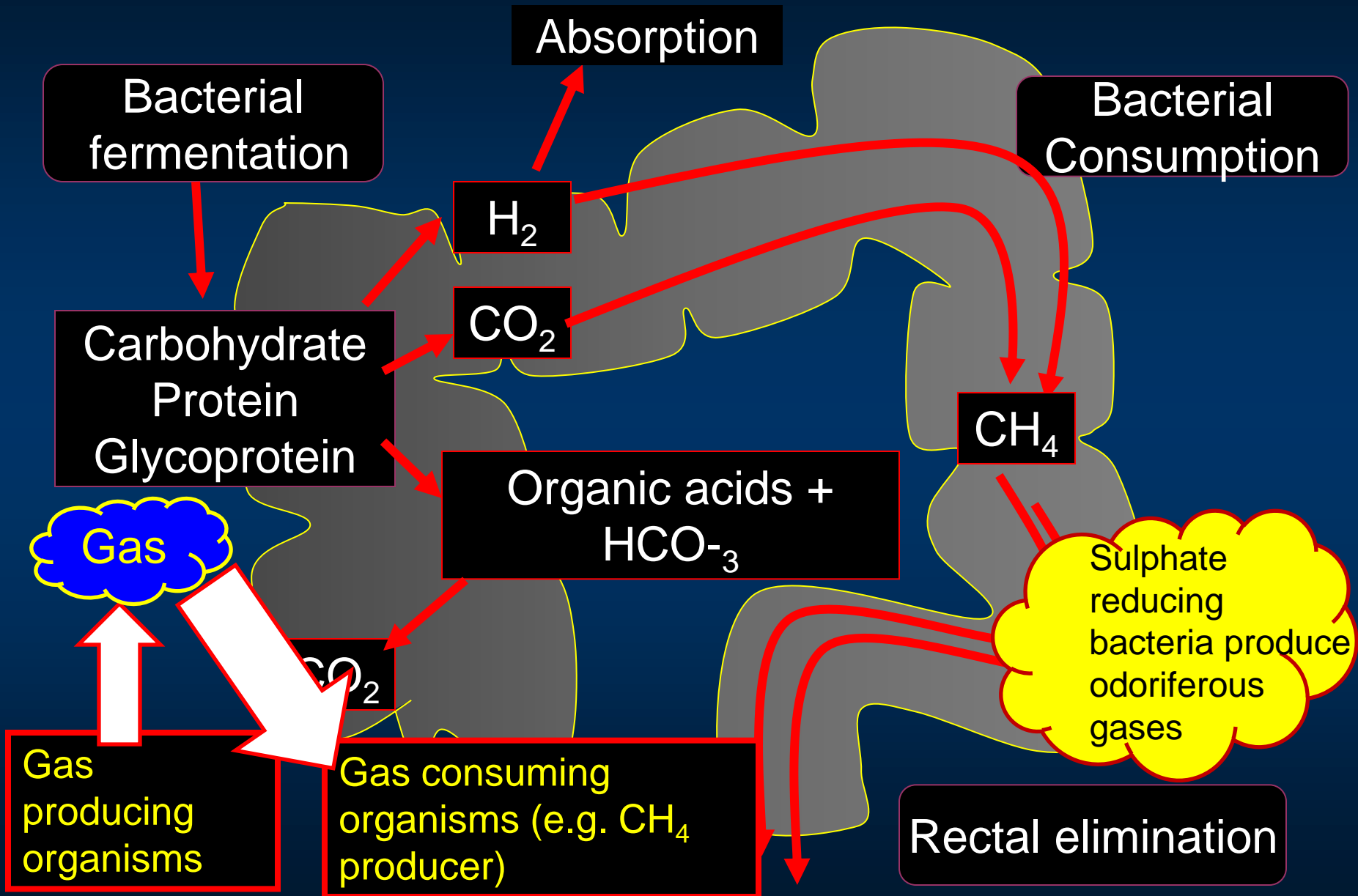


Visceral hypersensitivity



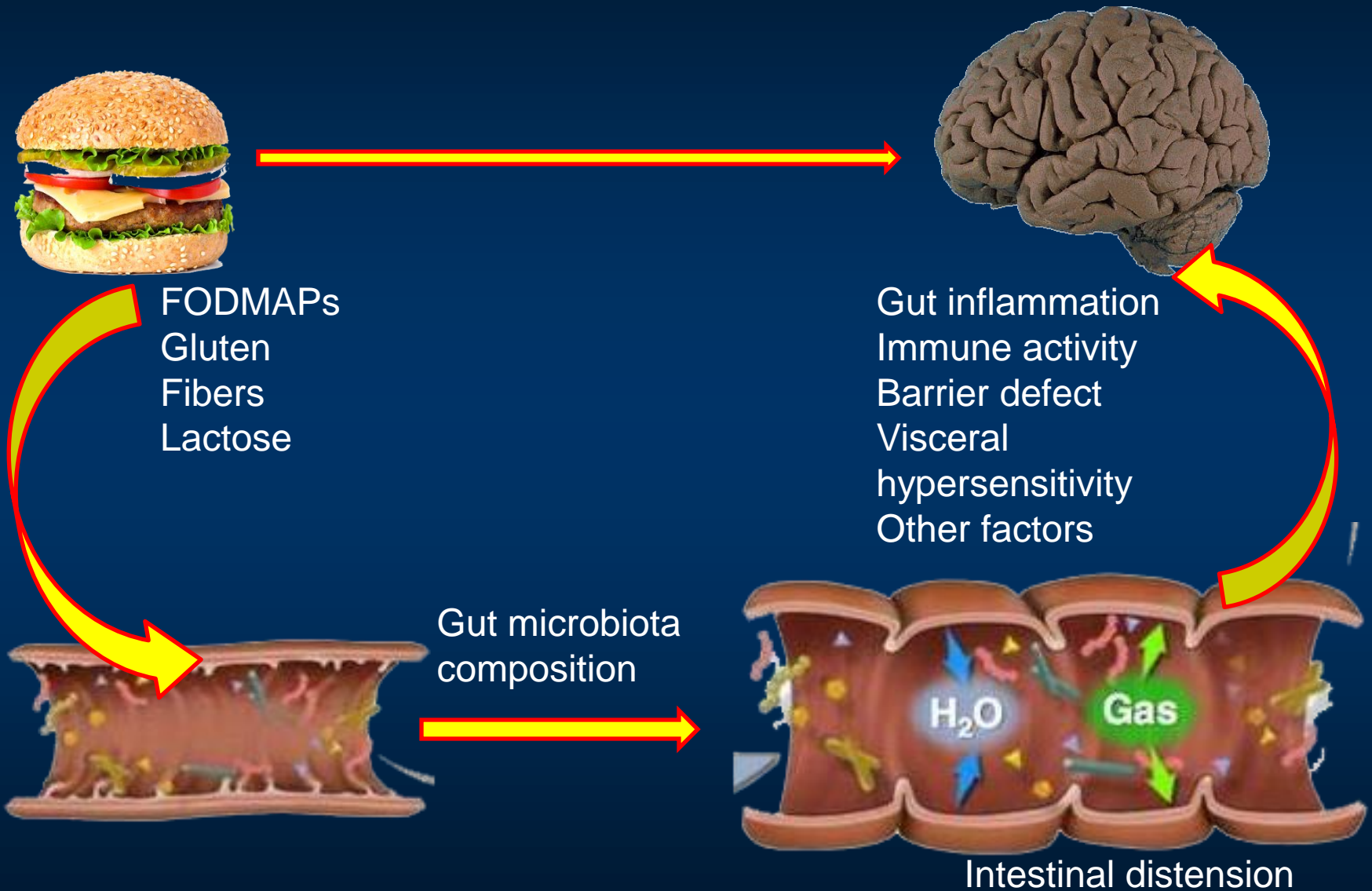
Gut dysmotility

Formation & elimination of gases



FODMAPS and IBS

Fermentable Oligo-, Di-, Mono-sAccharides and Polyols



Dietary FODMAPs

Chemicals	Common name	Sources
Fructose	Fruit sugars	Fruits, corn syrup, honey
Lactose	Milk sugar	Milk, yogurt, ice cream
Frustans	A type of fiber	Wheat, onion, garlic, chicory
Galactans		Soy, beans, chickpeas, lentils, cabbage
Polyols	Sorbitol, mannitol & other 'ols'	Sweeteners in some fruits, vegetables, mushrooms & sugar-free candies

- To date there are 6 seminal papers with high quality evidence of efficacy of the low FODMAP diet in IBS

Shepherd SS, Muir J, Gibson PR CGH 2008; Barrett JS, Muir J, Gibson PR APT 2010; Ong D, Gibson PR, JGH 2010; Biesiekierski J, Gibson PR Gastroenterol 2013; Halmos EP, Gibson PR, Gastroenterol 2014; Halmos EP, Gibson PR Gastroenterol 2015

Low FODMAP foods

FODMAP'—Fermentable Oligo-, Di- and Monosaccharides and Polyols



Grapes



Raspberry & strawberry



Cucumber



Corn



Tomato



Rice



Maple Syrup



Kiwi fruit



Bok choy



Eggplant



Blueberry



Banana



Grapefruit

Maple syrup



Orange



Lemon



Lettuce



Margarine



Fish



Green parts of scallions



Carrot



Green bean



Black tea

High FODMAP foods (Fermentable Oligo-, Di- and Monosaccharides and Polyols)



Garlic



Beet



Onion



Okra



White parts of scallions



Asparagus



Peas



Mushroom



Cauliflower

Ghoshal UC, FODMAPS

www.spread.net.in

High FODMAP foods



Apricot



Fruit juice



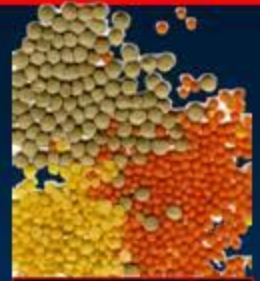
Pears



Rye



Baked beans



Lentils



Apple



Canned fruits



Watermelon



Milk & its products



Custard



Artichokes



Mango



Nectarines



Wheat



Ice cream



Kidney beans



Broccoli



Peach



Plums



Chick peas

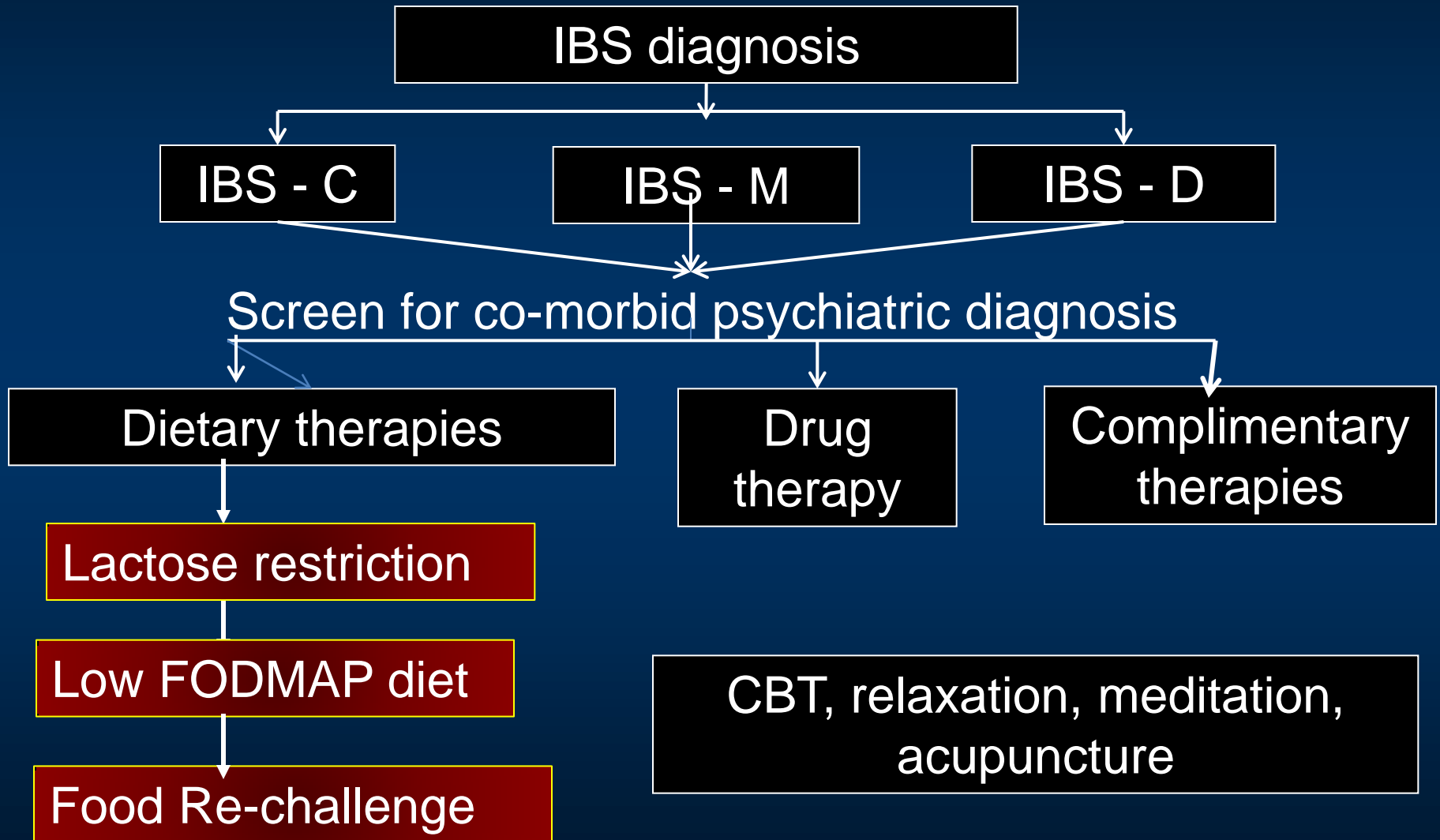


Cabbage

Low FODMAP diet in IBS

- Clear utility – awaiting Asia-Pacific data
- Caveats
 - Tends to be more expensive
 - May develop food obsessions
 - Overly restrictive
 - Inadequacy of dietary fibre
 - Reduction in colonic bifidobacteria after 4 weeks on low FODMAP diet
 - May have long-term implications
- Re-challenge program to liberalise food choice
- Administration via specialists/dietitians/nutritionists

IBS treatment algorithm: The past & future



IBS management: The team approach

