Interpretation and reporting of GI symptoms, differential diagnosis and diagnostic work-up in India

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Culture

Culture is the value, belief and practice of a particular group that are learned and shared, which guide thinking, decisions, and actions in a patterned way.

Culture-related factors can affect type of health care and outcomes and also affect the behavior of a large group of people.

Language is a vehicle by which culture is expressed.
Hence, for validation of questionnaire for India, multilingual nature of the country needs to be considered.
Issues on IBS prevalence in India & Asia

- 676 subjects from urban Bangkok
- 401 subjects from rural area
- 189/4500 (4.2%) subjects, both urban and rural
- 191/4767 (4%) subjects from a rural area (Rome III criteria)
- IBS prevalence in West is 12-20%, higher than that in India. Why?
  - Gwee KA. Neurogastroenterol Motil 2005

- Same questionnaire in US 22%


Issues on symptom profile of IBS in India

N = 2785 patients

Symptoms

Lower abdominal pain/discomfort
N=1958 (70%)

Lower abdominal fullness
N=1951 (70%)

Mucus with stools
N=1506 (54%)

Subjective Constipation
N=1404 (53%)

Subjective Diarrhea
N=1252 (47%)

Abdominal pain
N=1364 (49%)

Ghoshal UC, et al. Indian J Gastroenterol 2008;27:22-8

Constipation and diarrhea as felt by patients & by stool frequency criteria

**Constipation**
- Patient’s feeling: 2656
- Stool frequency criteria: 1404

**Diarrhea**
- Patient’s feeling: 2656
- Stool frequency criteria: 1252

**Stool frequency < 3/week = constipation**

**Stool frequency > 3/day = diarrhea**

Ghoshal UC, et al. Indian J Gastroenterol 2008;27:22-8
Sub-typing IBS patients in India

IBS Sub-Group in complainant group (N=1301)

- Constipation predominant IBS: 507, 39%
- Diarrhea predominant IBS: 744, 57%
- Untyped: 50, 4%
Can such discordance be explained by bowel habit in Indian population?

Ghoshal UC, et al. Indian J Gastroenterol 2008;27:22-8
Stool weight & intestinal transit time

Stool weight among 514 healthy Indian adults 311 g/24h (range 19-1505 g)*

<table>
<thead>
<tr>
<th>Country</th>
<th>Type of diet</th>
<th>Transit time (hours) Mean (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.K.</td>
<td>Refined</td>
<td>83.4 (44-144)</td>
</tr>
<tr>
<td>U.K.</td>
<td>Refined</td>
<td>76.1 (35-120)</td>
</tr>
<tr>
<td>North India</td>
<td>Mixed</td>
<td>39.85 (20-82)*</td>
</tr>
<tr>
<td>South Africa</td>
<td>Unrefined</td>
<td>33.5 (20-48)</td>
</tr>
<tr>
<td>Uganda</td>
<td>Unrefined</td>
<td>35.7 (19-68)</td>
</tr>
</tbody>
</table>

*Tandon RK, J Asso Phys India 1976; 24
Bowel habits, diet & cultural issues

• Indian mothers teach their children to defecate 1-2 times/day and to take fiber-rich diet. Vegetarianism is common in India

• 90% of Indian healthy people pass 1-2 stools/day. IBS patients had a median stool frequency of twice a day irrespective of whether they subjectively felt constipated or felt having diarrhea

  Ghoshal UC, et al. Indian J Gastroenterol 2008;27:22-8

• Recent trend of increasing consumption of low fiber Westernized diet might result in less stool frequency and volume leading to feeling of constipation due to childhood training of having 1-2 stools per day
Issues on lactose malabsorption (LM) in IBS in India

LM in patients with IBS (n=124)
- LM +: 102 (82%)
- LM -: 22 (18%)

LM in healthy subjects (n=53)
- LM +: 41 (77%)
- LM -: 12 (23%)

\[ p = \text{ns} \]

- Post-lactose symptoms +: 58 (45%)
- Post-lactose symptoms -: 68 (55%)

\[ P < 0.05 \]

Regional difference in LM among healthy Indians

## Prevalence SIBO in IBS in Asia & West

<table>
<thead>
<tr>
<th>No.</th>
<th>Country</th>
<th>SIBO in IBS</th>
<th>SIBO in HS</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>US</td>
<td>78%</td>
<td>----</td>
<td>LHBT</td>
</tr>
<tr>
<td>2</td>
<td>US</td>
<td>84%</td>
<td>20%</td>
<td>LHBT</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>11.2%</td>
<td>----</td>
<td>GHBT</td>
</tr>
<tr>
<td>4</td>
<td>India</td>
<td>11%</td>
<td>1%</td>
<td>GHBT</td>
</tr>
<tr>
<td>5</td>
<td>Korea</td>
<td>48.7%</td>
<td>26.5%</td>
<td>LHBT</td>
</tr>
</tbody>
</table>

2. Pimentel et al
3. Rana SV et al. Tropical Gastroenterology
5. Gupta D, Ghoshal UC et al J Gastroenterol Hepatol 2003

Median OCTT among Indian is 65 min \((Ghoshal UC. JGH 2003; 18: 540-7)\)

Mean OCTT in Taiwan: \(85.3 + 37.3\) min \((Lu CL. Clin Sci 1998; 95: 165-9)\)

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**Short OCTT was diagnosed as SIBO**

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![Breath hydrogen ppm vs time graph](attachment:breath_hydrogen_graph.png)
Does parasites cause IBS: *E. histolytica*

- **154 subjects in a community**
- **IBS: 22**
  - **Eh 11**
  - **No Eh 11**
- **Asymptomatic: 134**
  - **Eh 22**
  - **No Eh 112**

**Metronidazole response**

*Evaluation: Monthly for 1 y*
- Clinical
- Stool microscopy
- Stool culture for Eh
- Zymodeme analysis (PAGE)
- Sigmoidoscopy
- Amoebic serology

*Ghoshal UC, et al. Indian J Gastroenterol 2008;27:22-8*

*Sinha, Ghoshal, Choudhuri Indian J Gastroenterol 1997; 16: 130-3 Anand AC et al. Lancet*
Follow-up data

- There was no relation between presence or disappearance of *E. histolytica* and symptoms of IBS.
- Could response to metronidazole indicate action on bacterial overgrowth than amoebiasis?

Sinha, Ghoshal, Choudhuri Indian J Gastroenterol 1997; 16: 130-3
### E. Histolytica and IBS

<table>
<thead>
<tr>
<th></th>
<th>IBS from community survey (n=78)</th>
<th>Asymptomatic controls (n=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBS by Kruis criteria</td>
<td>127/144</td>
<td>-</td>
</tr>
<tr>
<td>Eh on stool examination</td>
<td>26/144 (18%)</td>
<td>18 (18%)</td>
</tr>
<tr>
<td>Amebic serology +ve</td>
<td>61 (42%)</td>
<td>41 (41%)</td>
</tr>
<tr>
<td>Colonoscopic abnormality</td>
<td>5/66 (7.5%)</td>
<td>1/33 (3%)</td>
</tr>
<tr>
<td>Colonic biopsy histology</td>
<td>36/73 (49%)</td>
<td>10/33 (30%)</td>
</tr>
</tbody>
</table>

- Anti-amoebic therapy in symptomatic: More than 60% of cyst +ve & -ve patients had symptom resolution

*Anand AC et al. Lancet 1997; 349: 9045*
Issues on Post-infectious IBS

Acute infective enteritis

Complete recovery

Continuing bowel disturbance

PI-IBS

PI-MAS (tropical sprue)

Definition of tropical sprue or PI-MAS
- Malabsorption of two or more unrelated substances
- Abnormal small bowel mucosal histology
- Exclusion of other causes of MAS
- Persistent response to antibiotics and folic acid
Post-infectious MAS (tropical sprue) has been reported in India in past

<table>
<thead>
<tr>
<th>Village</th>
<th>Total population</th>
<th>Total cases*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>663</td>
<td>219</td>
</tr>
<tr>
<td>2</td>
<td>2,563</td>
<td>562</td>
</tr>
<tr>
<td>3</td>
<td>527</td>
<td>74</td>
</tr>
<tr>
<td>4</td>
<td>267</td>
<td>98</td>
</tr>
</tbody>
</table>

*Alteration in character or frequency of stool

Am J Clin Nutr 1968; 21: 1077-87
There is overlap between PI-IBS & PI-MAS?

- Post-infectious IBS is usually diarrhea-predominant type
- Tropical sprue is often associated with small intestinal bacterial overgrowth as in IBS in general and diarrhoeal IBS in particular
- In studies on PI-IBS, tests for mucosal malabsorption have not been done. Hence, MAS has not been excluded?
- 10-20% patients with chronic diarrhea develop PI-IBS. A frequency somewhat similar to that of PI-MAS
- Small intestinal permeability abnormality has been reported both in tropical sprue and in PI-IBS

Ghoshal UC, et al. J Gastroenterol Hepatol 2010 and J Gastroenterol Hepatol 2011
Thank you