

Research Article

Irritable Bowel Syndrome Pathophysiology According to Traditional Iranian Medicine

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Abstract:

Background: Irritable bowel syndrome (IBS) is a prevalent digestive disease with altered bowel habits. In the modern medicine (MM) its pathophysiology and treatment is poorly understood. Traditional Iranian Medicine (TIM), has introduced IBS from many years ago, although nowadays people think that IBS was described in 1849 AD for the first time.

Methods: This article, has compared the pathophysiology of IBS based on Traditional Iranian Medicine and Modern medicine. It's important to consider that the medical terminology of TIM is different from that of MM, but the human's body and diseases have not been changed

throughout the history, so TIM that had been efficient in the past, has the potential to cure patients in present.

Results: According to investigations “Ghoolenj Rihi” is a disease that is equal to IBS-C and “Maghs Rihi” is the same as IBS-D. TIM classifies the causes of IBS, in three classes: 1- intestinal tissue problems, 2- intestinal content problems, 3-non intestinal problems. The therapeutic category of IBS according to TIM contains: Laxatives for IBS-C (and Anti-diarrhea remedies in IBS-D), Enema or suppositories, Carminatives, analgesics, compress, cupping, Bathing (or taking the special device).

Conclusion: According to comparative study between TIM and MM, the pathology of IBS is due to: 1-intestinal tissue problems: smooth muscle/ endocrine/ exocrine cell dysfunction. 2- Intestinal content problems: bad foods/ some other substances that can enter the colon’s lumen and makes it irritable. 3-Non intestinal problem: is because of other body organs affecting intestine. The holistic vision about the disease, suggests new approaches to IBS treatment.

Key words: IBS, pathophysiology, TIM

Introduction:

Irritable bowel syndrome is an important disorder because it is the most prevalent digestive disease and its care costs are estimated to be very expensive. Its clinical features are altered bowel habit, change in defecation frequency and form of stool, and abdominal discomfort which is relieved by defecation. In the modern medicine (MM) its etiology, pathophysiology and treatment is poorly understood (Text book of gastroenterology, Yamada.T, et al,2003, chapter 86). Traditional Iranian Medicine (TIM) has defined a disorder that seems to be equal to IBS and it has reported special etiology, pathophysiology and treatment for the disorder. This article with analogy method between modern medicine and TIM, reports that IBS was prevalent in the past and the TIM physicians have known this chronic disorder and have defined some different causes for its pathophysiology, but nowadays, according to the book of Human Nutrition, Geissler c Ph. 2010, chapter 23, people think that IBS was described in 1849 AD for the first time. It is important to consider that the medical terminology of TIM is different from that of MM, but the human's body and the disease have not been changed throughout the history, so TIM that had been efficient in the past, has the potential to cure patients in present.

Nowadays, many IBS patients have tended to alternative medicine for symptom relief. According to text book of gastroenterology Yamada (2003) chapter 86, and other valid documents such as the book of gastrointestinal and liver disease, Feldman.M (2010) chapter 118 or the article of David J Kearney and Janelle Brown-change (2008): it seems that Traditional Chinese Medicine (TCM) and Ayurvedic treatments are helpful for IBS patients in some extent, but TIM knowledge, the heritage of the strong physicians such as Aviceenna and Rhazes has been forgotten in this case. William A. Jackson(2001) mentioned that: TIM is believed in doctrine of four 'humors' which states that: "the human body consisted of blood, phlegm, yellow bile and black bile. If these were in correct proportions in strength and quantity the body was healthy. To understand humoral medicine it is necessary to become accustomed to the language of the period".

Abbreviations:

IBS: Irritable bowel syndrome

TIM: Traditional Iranian Medicine

MM: Modern Medicine

IBS-C: IBS-constipation predominant

IBS-D: IBS-diarrhea predominant

Method:

This article has compared the pathophysiology of IBS based on Traditional Iranian Medicine and Modern medicine.

. By search in TIM textbooks such as Rhazes's "Ghoolenj book", Avcina's "Ghoolenj book" and "Qanun", "Tib Akbari, Hakim Mohammad Akbar Arzani", and "Zakhire Kharazmshahi, Hakim Esmaeel Jorjani" and modern medical textbooks such as "Tadataka Yamada and colleagues, Text book of gastroenterology, volume 2, 4th edition, 2003", "Sleisenger and Fordtrans, Gastrointestinal and liver disease, 9th edition, 2010", and "Human Nutrition, 12th Edition, 2010" chapter 23, and other related articles, the subject of IBS was reviewed.

Definition and clinical features:

In TIM textbooks such as "Qanun" and "Ghoolenj" of Avcina, or Rhazes's "Ghoolenj book", Ghoolenj is a disorder with abdominal pain and constipation that has different types and usually the disorder is in the environment of Ghoolon (=colon), so because of this, the name of the disorder has become Ghoolenj. In European dictionary, "colique" or "colic" is a painful harm of colon with abdominal pain. In modern medicine, Ghoolenj is just a symptom of the disease but in TIM point of view, Ghoolenj is a disease and it has some symptoms for itself.

Rhazes in his Ghoolenj book has said: "Ghoolenj Rihi" (that Ghoolenj means colic with constipation and Rih means flatulence or wind, so "Ghoolenj Rihi" means flatulent colic with constipation) happens because of compact flatulence in the bowel and Sticky mucus (stuck phlegm) is in the bowel. In "Ghoolenj Rihi", there is a lot of flatulence and borborygmos and eating of gas-producing foods or eating foods that are very cold temper (that can change the function of neuroendocrine system related to the bowel.), or drinking fortified wine or eating a lot of fresh fruit. The symptoms are much the same as the symptoms that are stated in modern medical textbook references. Avcina believes that: The symptoms of "Ghoolenj Rihi" includes: spasm, cramps, abdominal discomfort (heaviness feeling) borborygmos and sticking of the residue in the bowel or leaving little stool. (This description is seemed to be equal to type one stool in Bristol stool scale form, that the textbook of Gastrointestinal and liver disease. Feldman.M;(2010) chapter 118, has been reported that 75% of IBS-C patients have this type of stool). Another term that has been usually come by Ghoolenj in the TIM textbooks is "Maghs" (means cramp or colic with diarrhea. As Ghoolenj has different types in TIM and one of them is "Ghoolenj Rihi", Maghs has different types too and "Maghs Rihi" seems to be equal to IBS-D. TIM reports that "Maghs Rihi" is with a lot of flatulence and because of spasm, the patient feels pain and its symptoms are flatulence, borborygmos, and abdominal discomfort, also relief by exit of the gas from the intestine. TIM describes that the source of produced gas in IBS-D is the crude mucus (crude ingredient) in the bowel.

Also “Tib akbari book” has classified the causes of flatulence and borborygmos in two parts that the second part seems to be the description of IBS patients: 1-Because of eating gas-producing foods or bad-quality foods or large meals (and it can happen to everyone). 2-Because of weakness and coldness in the bowel that triggers incomplete digestion (may be incomplete absorption). Although the food is good in quality and quantity, it is not digested well in the intestine and causes borborygmos.

Table 1: IBS-C clinical features are compared with “Ghoolenj Rihi” clinical features that is mentioned in Rhazes’s “Ghoolenj book: (Zaker, M. I. (2006) Translation of Rhazes and AVECINA’s Ghoolenj book)

(Flatulent colic = Ghoolenj Rihi)	IBS-C
Constipation, sticking of the residue in the bowel or leaving little stool	Constipation, stool type 1 from Bristol stool scale form
Abdominal pain	Abdominal pain
Flatulence, borborygmos	Flatulence
Disorder in the Ghoolon(colon)	Colonic disorder
Aaraz-e-nafsani, relation to black bile	Psychological effects

Table 2: IBS-D clinical features are compared with “Maghs Rihi” clinical features that is mentioned in Qanun of AVECINA: (Zaker, M. I. (2006) Translation of Rhazes and AVECINA’s Ghoolenj book)

(Flatulent colic = Maghs Rihi)	IBS-D
Diarrhea, sometimes they have mushy stool that is fluffy and spongy	Diarrhea, stool type 6 from Bristol stool scale form
Abdominal pain because of spasm and flatulence	Abdominal pain
Flatulence, borborygmos and bowel wet gas	Flatulence
Disorder in the bowel	Colonic disorder
Aaraz-e-nafsani	Psychological effects

Pathophysiology:

In the MM, the pathophysiology of IBS is poorly understood, but current researches have focused on some changes that happen in IBS patients. In other words, today researchers try to find the main causes of IBS from the changes of laboratory tests and its signs. It is clear that endocrine-factor changes play an important role in IBS pathophysiology. According to M. El-

Salhy DG, et al (2012): “Reduced endocrine cell density, as revealed by chromogranin A, has been reported in the colon of IBS patients.” Sharmela Thevarajah MP. et al (2005) mentioned that: “Estrogen, TNF, endothelin, and prostaglandins exert effects on the GI tract and female sex hormones may play a role in IBS symptomatology”. Olafur S. Palsson. WEW in the article of Hormones and IBS, has describe that: “patients with IBS had an exaggerated cholecystokinin (CCK) response to a fat-rich meal, and a decreased motilin response to both a meal and water. IBS patients show an increase in motilin in response to mental stress in a laboratory test, and that hormone rise is associated with abnormally increased gut activity. Exaggerated Cortisol activity and Corticotropin-releasing hormone (CRH), which has been shown to cause stress related intestinal muscle activity in laboratory animals, have been reported in IBS patients”. D.W. Wilson APSHet al(2011) mentioned that: “Melatonin attenuates abdominal pain and increases the rectal pain threshold in patients with IBS with sleep disturbances”. Cristina Stasi MR. et al,(2012) described that: “Altered neuro-endocrine-immune pathways exist in the irritable bowel syndrome”. Also, according to human nutrition text book by Geissler (2010) chapter 23: “Modern medicine focus on multiple factors including: genetic predisposition, altered immune response stimulated by food sensitivity and altered microbial environment, an elevated inflammatory response to gastroenteritis, small intestinal bacterial overgrowth, abnormal release or transport or recognition of serotonin, and an increased sensitivity of the enteric nervous system that causes abnormal motility and pain. Abnormal motility is considered to be one of the major factors involved in symptoms of abdominal pain and altered bowel habits. Gastro-intestinal tract hormones play an important role in regulating gastrointestinal motility.” according to Ducrotté P. (2009): the hypersensitivity in IBS is either to an afferent neurons disfunction at the enteric nervous system level, either to an abnormal brain-gut axis processing of sensory or nociceptive inputs arising from the gut, at the spinal or supraspinal level.

On the other hand, TIM has described IBS pathophysiology based on the doctrine of four humors. According to that doctored, when four humors are in balance, the human body is healthy. Each food or drug or also mental condition, can change the ratio of humors and affect the balance of body. Originally different humors are the concepts in TIM terminology that can cause different behaviors. It has direct relation to neuroenocrine system that can affect behaviors. Distemperment clinical features of the body, seems to have relation with unbalance of neuroendocrine system. TIM classifies the causes of IBS, in three classes: 1- intestinal tissue problems, 2- intestinal content problems, 3- non intestinal problems. It reports some clinical features that shows neuroendocrine changes in the colon, and also believes that dysfunction in some other organs such as liver, gall-bladder, spleen, vertebral column or nervous system can trigger to IBS. (Table 3)

Table3: Probable pathophysiology of IBS, according to AVECINA and RHAZES’S GHOOLENJ BOOK:
(ZAKER, M. I. (2006) Translation of Rhazes and AVECINA’S GHOOLENJ BOOK)

1-Intestinal tissue problems	1-1: Change in peristaltic waves.
	1-2: Change in transformative waves in GI tract that in IBS-C is low energy that can't change the mucus (phlegm) so it becomes sticky and causes constipation, and in IBS-D, it is high energy and the crude mucus exists in the lumen.
	1-3: Distemper of bowel that causes weakness in it. (Distemper in the bowel, can cause neuroendocrine changes). For example: Cold temper of bowel can cause constipation, or increased level of bile, with the hot-temper of the bowel, can cause constipation.
2-Intestinal content problems	2-1: Change of residues in the bowel because of distemperment of another organ, for example, distemperment of liver can dry the residues in the bowel.
	2-2: Releasing substances from other organs, for example, spleen or gallbladder.
	2-3: Obstruction of a kind of substance in an organ that the substance could help the bowel to have normal function, for example, obstruction of bile can cause constipation.
	2-4: Traction of residues and ingredients in the intestine to another organ.
3-Non intestinal problems :	3-1: Liver: Eliminates the fluids in the chylos (in TIM point of view, chylos is a white and watery substance that fills the abdominal liver vessels while digestion occurs) and makes cold temper and weak digestion, leading to IBS-C)
	3-2: Gall bladder: By reducing the release of bile to the intestine, can cause obstruction of residue and fluids and impacted gas that its decomposition is very difficult, so it triggers IBS-C, (and it can be deduced that by increasing the release of bile, it can trigger IBS-D and it is interesting to say that cholestyramin, that is a bile-acid-sequestrant, has been examined and shows some good results in treating the symptoms of IBS-D.
	3-3: Spleen: 1-By making the colon, and small intestine, and stomach cold in temper, digestion becomes weak (modern medicine reports that 1/3 of IBS patients have dyspepsia problem), 2- By increasing black bile (melancholia) that gets caught in the bowel and produces gas and makes the bowel weak. It is interesting that black bile has a connection with depression and melancholy disease.
	3-4: Vertebral column: Moving the lumbar spine can create pressure on the bowel.
	3-5: mental factors: TIM physicians such as Hakim Esmaeel Jorjani believe that there is a potential in human being that can be influenced by environmental happenings and their neural messages. It can be affected by human's feelings that are called "Aaraz-e-Nafsani" (mental factors) and they can influence the body, immediately. See part psychological factors in the text.

TIM, has report some bad life style and bad diet that can start IBS signs in IBS patients that is exactly the same as what is said in the text book of Human nutrition, Geissler (2010) chapter 23: (Table 4)

Table4: bad life style and bad diet that can start IBS signs in IBS patients, according to AVECINA and Rhazes’s Ghoolenj book: (Zaker, M. I. (2006) Translation of Rhazes and AVECINA’s Ghoolenj book)

Bad life style	shortage of night sleep
	Large meal
	Bad pattern of eating
Bad diet	Fruits such as apple, Pears, Honeydew melon, Peach, Apricot, Grape
	Fortified wines
	Vegetables such as Garden cress, Cabbage, beans, Chicory
	White bread
	Dairy such as milk
	Fried foods
	coffee

TIM has a general fact that: controlling of diet is better than using medicine. Also there is an important note that Rhazes has a book called “Dafe-mazar-al-aghzieh va-al-advieh” (that means repelling the harmful effects of foods and drugs) that describes some special foods that can be administered to decrease the adverse effect of foods or drugs that have adverse effects in people. So Rhazes in the Ghoolenj book has reported that: “It’s worthy for the people that usually have Ghoolenj, that if they want to eat or drink some of the things that cause their symptoms, they will do as he has suggested in the book: Dafe-mazar-al-aghzieh va-al-advieh”. AVECINA has believed that avoiding evacuation is very harmful. It can torment the brain (nervous system) and make the stomach ingredients spoiled. Also TIM recommends some suggestions to IBS patients (Table 5).

Table 5: Recommended life style for IBS according to Rhazes's Ghoolenj book: (Zaker, M. I. (2006) Translation of Rhazes and AVECINA's Ghoolenj book)

Life style	Taking bath before eating.
	Too much exercise and movement.
Diet	Eating carminative TIM remedies, eating Laxatives in IBS-C (and Anti-diarrhea remedies in IBS-D)
	Help yourself to have good digestion, for example eating a little food just when you feel hunger.

Rhazes has introduced a category for cure IBS (table 6); each item that mentioned in this table, has a complete and detailed description in Rhazes's Ghoolenj book but here, in this article, they are stated briefly.

Table 6: Therapeutic category for cure IBS according to Rhazes's Ghoolenj book (Zaker, M. I. (2006) Translation of Rhazes and AVECINA's Ghoolenj book) and Tib Akbari: (Arzani, M. A. (2008) Tib akbari. 1st (ed): Jalalodin):

Laxatives for IBS-C (and Anti-diarrhea remedies in IBS-D)	Some special compoundings (Gharabadin) that is made of multi-herbs is mentioned in Rhazes's Ghoolenj book. For example a compounding that is made of: <i>Convolvulus scammonia</i> Linn., <i>Citrullus colocynthis</i> Linn. and <i>Ferula persica</i> , is mentioned as a laxative remedy to use in IBS-C. (Also see Rahimi R and Abdollahi M. article about herbal medicine for the management of irritable bowel syndrome: A comprehensive review in <i>WJG</i> 2012)
Enema or suppositories	They are classified as: strong, moderate or mild types. For IBS-D there is "Maejoon Shahriaran" or "hab sakbinaj" or "hab ayare". For IBS-C also it has mentioned different drug formulations such as a compounding of <i>Ruta graveolense</i> Linn., <i>Cuminum cyminum</i> L., <i>Carum copticum</i> L. and has special processes to prepare.
Carminative	The most popular remedies are: "jovaresh komooni type 1" and "maejoon falafeli" for IBS-C, and "jovaresh komooni type 2" and

	“jowaresh Khoozi” for IBS-D.
Analgesics	It has reported the use of <i>Hyoscyamus niger</i> in some compounding formulations, also has reported using opioides in some cases.
Compress	Dry or wet compress is used, but dry compress is more applicable. It is important for a physician to understand the patients humor and use the correct type of compress.
Cupping	It has an amazing effect, if it is used in a correct way and correct place.
Bathing	TIM has introduced an Innovative device that is portable and it is placed around the abdomen. It becomes full of warm water so it has the effect of bathing on the colon, but the advantages are that the patient can use it when he is at work or he is seating or sleeping or walking. And also it doesn't have the negative effects of bathroom.

Psychological factors:”Aaraz-e-Nafsani”

According to Hakim Esmaeel Jorjani in the book of “Zakhire Kharazmshahi” there is a power in human that can be influenced by environmental happenings (neuroendocrine system). It can be affected by some feelings such as: happiness, sadness, anger, enjoyment, fear, immunity, and shame. These feelings are called Aaraz-e-Nafsani (Psychological factors). Because of each of the feelings, the temper of human’s organs, humors, spirit, and their functions can be changed. This effect can immediately influence the body so it is more powerful than the effect of foods and drinks or sleeping and awaking or mobility and immobility or etc in the body. Some of the Aaraz-e-nafsani makes the body hot-temper and some of them make it cold-temper (change the neuroendocrine function).

For example, sadness, fear and depression make the body cold. (In modern medicine, it has been proved that in IBS patients, stress and depression have an important role in intensification of the symptoms. In IBS, the distemper of the bowel is cold, so the feelings (Aaraz-e-Nafsani) that make the body cold such as sadness, fear and depression can unbalance

the humors and exacerbate symptoms, and the feelings that make the body hot such as happiness, anger, enjoyment, thinking of important actions can balance the cold temper of the body and relieve the symptoms. Also Hakim Esmaeel Jorjani has mentioned that: there is another options for managing stress, that is, people should believe that they are strong and they should try to have a high ambition and try to control their feeling to have no influence from outer happenings.

Conclusion:

According to comparative study between TIM and MM, IBS is a multi factorial disorder that the pathology of IBS could be due to: 1-intestinal tissue problems that includes: smooth muscle/ endocrine/ exocrine cell dysfunctions. 2- Intestinal content problems that includes: residue of bad foods/ some other substances that can enter the colon's lumen and makes it irritable. 3- Non intestinal problem that is because of other body organ problems that can influence intestine. In this comparative study, a holistic vision about the disease, suggests new approaches to IBS treatment.

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