

BIOPSYCHOSOCIAL APPROACH OF GASTROINTESTINAL DISORDERS

CRISTINA POJOGA^{1,2}, MIHAELA FADGYAS STĂNCULETE³

¹Prof Dr Octavian Fodor Regional Institute of Gastroenterology and Hepatology, Cluj-Napoca, Romania

²Department of Clinical Psychology and Psychotherapy, Babes-Bolyai University, Cluj-Napoca, Romania

³Department of Neurosciences, Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

Abstract:

Gastrointestinal disorders represent are conditions frequently seen in primary care, usually associated with a poor quality of life, entailing increased direct and indirect costs. Disorders of the digestive tract frequently coexist with psychological impairment. Even in early times scientists were concerned about the influence of the mind over body, and that there are many theories that explain the interaction between psychological factors and the physical status. At the present time the most comprehensive theory is the biopsychosocial model.

There are four categories of factors that have to be addressed by the physician (or the integrated team that manages the patient): disease-related, therapeutic-regimen-related, individual factors and psychopathological comorbidities. In the following paper we discuss these factors and their importance in clinical management of gastrointestinal disorders.

Keywords: health psychology, behavioral medicine, biopsychosocial approach, psychosomatic medicine, gastrointestinal disorders.

Introduction

Recent research demonstrated an important impact of psychosocial factors on the development, progression and symptom maintenance of gastrointestinal diseases [1,2,3,4,5]. On the other hand, all these factors impair the quality of life of the patients and lead to occupational disability and affect their social relationships [6]. All these data put into question the biomedical model still used by some physicians to analyze and manage gastrointestinal diseases.

These recent studies caused a shift from this dualist model to a model of reciprocal interaction of physiological and psychological processes. This is an integrative model of psychology and medicine and is called the bio-psycho-social approach of the diseases. For example, peptic ulcer is a very good model for understanding the multifaceted interactions among different factors (psychological, behavioral, social and infectious) in generating an organic disease [7].

The integrative model is the most accepted model

nowadays and it evaluates four categories of factors: disease-related, therapeutic=regimen-related, individual factors and psychopathological comorbidities.

Biopsychosocial approach of the gastrointestinal disorders – the integrative model

1. Disease-related factors

The **onset** of the gastrointestinal disorder is relevant and it may be: symptomatic or asymptomatic, insidious or acute, traumatic or nontraumatic. In operant behavior terms, the symptoms alleviation will reinforce the behaviour to take the medication. The acute onset is generally perceived as more threatening than the insidious one [8].

It is important the way the patient's social group perceives the disease: for example hepatitis C viral infection versus cancer. The physician needs to be informed about the disease-related conceptions of the patient and his family, how threatening it is for them, if it is curable etc. For example, there is a general impression about cancer that it is a noncurable disease and because of this conception a lot of patients would not follow the medical recommendations (he feels it has no utility). The truth is that there are a large number of cases diagnosed in the early stages that can be

cured by modern treatments.

Disease **progression** can be uncertain but with some predictable elements, it can be acute or chronic, and its pattern influences the coping process. In acute progression, the intensity of the symptoms is usually greater. The pattern of the disease is influenced by individual pathophysiology, individual response to the treatment, treatment availability, presence of comorbidities, exposure and coping to stress (in some diseases like irritable bowel syndrome, inflammatory bowel diseases, stress modulates the evolution of the illness and the response to the treatment) [9].

The **symptom types** are also important to assess. The symptom may interfere with the functional independence of the person, it may affect their quality of life or be visible (for example jaundice) and by that it can create a discomfort for the patient in public. The presence of pain is also seen as a negative aspect of the disease and sometimes a condition that produces pain is perceived as more severe than a painless one. The contagiousness of the condition (real or perceived by the patient) and the stigmatization are also important aspects that interfere with the coping process and the compliance to treatment (for example viral hepatitis) [10].

2. Therapeutic regimen-related factors

Complexity of the treatment (number of drugs, scheduling) can reduce the patient's compliance. **Intrusiveness** of the treatment can affect relationships, personal development and intimacy and therefore it can be an impediment for complying with the medical recommendations. **Accessibility, cost** and **adverse reactions** are other important aspects to take into discussion when there is an issue about the compliance of the patient. In fact, the term "compliance" is a paternalist one, like the patients must strictly obey to some medical recommendation. Now the term "self-management" is preferred, because it suggests a patient-centered proactive process that implies certain actions that aim to manage the disease [11].

a. Individual factors

Intelligence, level of **education** and of **information** influences the way the patient manages the disease.

The **cultural level** of the patient sometimes can be an obstacle for the physician. The cultural level can be seen from multitude points of view: gender, race, sexual orientation, ethnicity, religion, socioeconomical status, residence, nationality of origin. It influences the risk for certain health problems, access to the health services and the way the patient approach them, interest, confidence, acceptance and adherence to the treatment [12].

Confidence in the doctor and in the medical system can enhance or can be an impediment for obeying to the treatment.

Beliefs about health and disease influence the

pattern of the disease evolution, the susceptibility to develop a disease or a complication and the adherence to the treatment.

Individual coping mechanisms are represented by the primary and secondary appraisal and by the coping style (problem-focused, emotion-focused or avoidance). Both problem-focused and emotion-focuses coping styles have advantages but the context they are employed in is important [13].

Social support has been demonstrated to have an important effect on the disease evolution influencing the endocrine stress reaction, the immune system status and the adjustment and recovery from the illness [14].

b. Psychopathological comorbidities

The majority of the patients with gastrointestinal chronic diseases have depression or anxiety.

Depression influences the symptomatology of the disease, its evolution and the adherence to the treatment. A depressed patient will be less motivated to follow the medical recommendation. Anxiety enhances the activity of sympathetic nervous system and interferes with the pathophysiology of certain diseases [15].

Substance abuse and dependence is sometimes overlooked by the doctors. It acts through 4 mechanisms:

- the effect of the substance is the main etiological factor for the illness itself: for example alcohol abuse;
- the substance has an additional effect to other present risk factors: alcohol raises the risk for hepatocellular carcinoma, just like viral B hepatitis, so an alcoholic patient with viral B infection will have an even higher risk to develop hepatocellular carcinoma;
- intoxication with the substance reduces adherence to the treatment or reduces the effect of the treatment: recreational drugs can modify the metabolism of some therapeutical drugs;
- i.v. substance use can transmit parenteral infections: for example hepatitis B and C virus.

Dementia and cognitive impairment are barriers to the treatment and these patients need help from family members to be able to take the medication correctly.

Psychosis influences symptoms and evolution of the disease and the antipsychotic medication is a risk factor for some gastrointestinal problems (for example constipation).

Patients with **personality disorders** have difficulty in establishing a positive relationship with the doctor, they have health risk behaviors, substance abuse behavior, and low social support and reduced adjustment to the disease [16].

Conclusion

Studies have shown that the psychosocial factors may have a negative or positive impact on health outcome. Until now this relationship has not been completely understood but every information is important

when choosing and tailoring therapies (medication and psychological interventions).

References

1. Drossman DA, Corazziari E, Delvaux M, Spiller RC, Talley NJ, Thompson WG, et al. Rome III: The functional gastrointestinal disorders. 3rd ed. McLean, VA: Degnon Associates; 2006.
2. Dinan TG, Cryan JF. Regulation of the stress response by the gut microbiota: Implications for psychoneuroendocrinology. *Psychoneuroendocrinology*. 2012;37(9):1369-1378.
3. Coëffier M, Gloro R, Boukhattala N, Aziz M, Lecleire S, Vandaele N, et al. Increased proteasome-mediated degradation of occludin in irritable bowel syndrome. *Am J Gastroenterol*. 2010;105(5):1181-1188.
4. Alonso C, Guilarte M, Vicario M, Ramos L, Ramadan Z, Antolin M, et al. Maladaptive intestinal epithelial responses to life stress may predispose healthy women to gut mucosal inflammation. *Gastroenterology*. 2008;135(1):163-172.
5. Camilleri M, Lasch K, Zhou W. Irritable bowel syndrome: Methods, mechanisms, and pathophysiology. The confluence of increased permeability, inflammation, and pain in irritable bowel syndrome. *Am J Physiol Gastrointest Liver Physiol*. 2012;303(7):G775-785.
6. Rose M, Scholler G, Klapp BF. Biopsychological relationships and prediction of the course of acute viral hepatitis. *Psychother Psychosom Med Psychol*. 1997;47(12):435-445.
7. Levenstein S. The very model of a modern etiology: a biopsychosocial view of peptic ulcer. *Psychosom Med*. 2000;62(2):176-185.
8. Vachon-Preseau E, Martel MO, Roy M, Caron E, Albouy G, Marin MF, et al. Acute stress contributes to individual differences in pain and pain-related brain activity in healthy and chronic pain patients. *J Neurosci*. 2013;33(16):6826-6833.
9. Bitton A, Dobkin PL, Edwardes MD, Sewitch MJ, Meddings JB, Rawal S, et al. Predicting relapse in Crohn's disease: a biopsychosocial model. *Gut*. 2008;57(10):1386-1392.
10. Dorn SD, Hernandez L, Minaya MT, Morris CB, Hu Y, Lewis S, et al. Psychosocial factors are more important than disease activity in determining gastrointestinal symptoms and health status in adults at a celiac disease referral center. *Dig Dis Sci*. 2010;55(11):3154-3163.
11. Hommel KA, Davis CM, Baldassano RN. Objective versus subjective assessment of oral medication adherence in pediatric inflammatory bowel disease. *Inflamm Bowel Dis*. 2009;15(4):589-593.
12. DiMatteo MR. Variations in patients' adherence to medical recommendations: a quantitative review of 50 years of research. *Med Care*. 2004;42(3):200-209.
13. Drossman DA, Leserman J, Li Z, Keefe F, Hu YJ, Toomey TC. Effects of coping on health outcome among women with gastrointestinal disorders. *Psychosom Med*. 2000;62(3):309-317.
14. Locke GR, Weaver AL, Melton LJ, Talley NJ. Psychosocial factors are linked to functional gastrointestinal disorders: a population based nested case-control study. *Am J Gastroenterol*. 2004;99(2):350-357.
15. Lackner JM, Gudleski GD, Thakur ER, Stewart TJ, Iacobucci GJ, Spiegel BM. The impact of physical complaints, social environment, and psychological functioning on IBS patients' health perceptions: looking beyond GI symptom severity. *Am J Gastroenterol*. 2014;109(2):224-233.
16. Baumeister H, Balke K, Härter M. Psychiatric and somatic comorbidities are negatively associated with quality of life in physically ill patients. *J Clin Epidemiol*. 2005;58(11):1090-1100.