

Standard Operating Procedure: Questionnaires

Introduction

Irritable bowel syndrome (IBS) is prevalent disorder with marked comorbidity. Data suggests that up to 93% of patients consulting a gastroenterologist for IBS symptoms have a lifetime history of a psychiatric disorder. Moreover in the majority depression and/or anxiety was diagnosed before the onset of gastrointestinal symptoms. It is well described that stress or anxiety may modulate gastrointestinal (GI) function culminating in symptoms such as diarrhoea, nausea and discomfort. Indeed, the influence that anxiety may exert on the GI tract is often reflected in phrases that are in common parlance such as “*butterflies in my stomach*” and “*gut wrenching*.”

Psychological comorbidity such as depression, anxiety and hypochondriasis is common and it has been estimated that over half of patients with IBS suffer from these disorders to one degree or another [1, 2]. In animal models, studies have shown that adverse early life events, such as maternal separation, are risk factors for the development of visceral pain hypersensitivity in adulthood [3]. In humans, there is evidence that a history of sexual abuse, especially in childhood, can alter visceral pain sensitivity [4, 5, 6]. Furthermore, the psychological context in which GI symptoms are interpreted by an individual may predict the development of IBS following an episode of gastroenteritis [7]. A recent meta-analysis has suggested that psychological treatments, as a class of interventions *per se*, are effective in reducing an individual’s symptom burden [8].

Therefore given these varied associations with IBS, the assessment of many of these factors is important which can be performed through the administration of validated self-report questionnaires.

Each IBS patient should have the following questionnaires administered (each are appended with the scoring keys, *vide infra*). It is anticipated that the completion of these questionnaires should take no more than 30 minutes.

Included in this standard operating procedure are two further questionnaires to assess personality traits and joint hypermobility. Although a number of hypotheses have been proposed to account for the pathophysiology of IBS, none has gained primacy in the literature largely due to the heterogeneous nature of this disorder. Interestingly a novel hypothesis, based on abnormalities centred around the extra-cellular matrix that comprises connective tissue has been proposed as a potential alternative hypothesis. For instance patients with joint hypermobility syndrome, akin to Ehlers Danlos syndrome type III, have many symptoms that are clinically indistinguishable from IBS [9].

Rome III modular questionnaires for IBS and functional dyspepsia

The Rome III modular questionnaires are validated and widely used assessment criteria for the diagnosis of functional GI disorders.

Global symptom rating scale-IBS

The GSRS is a 13 item validated questionnaire that evaluates the global burden of symptoms in patients with IBS [10].

Visceral Sensitivity Index

The visceral sensitivity index (VSI) consists of 15-items that reliably assess GI symptom-specific anxiety related to pain, diarrhoea, constipation, bloating, and a sense of urgency in the upper or lower abdomen. Subjects were asked to rate their level of agreement (strongly agree to strongly disagree) with the 15 items. The scale has been validated and shown to have good discriminate validity [11, 12].

Nepean Dyspepsia Index

The Nepean Dyspepsia Index (NDI) is a 42-item quality of life scale designed to measure impairment of a subject's ability to engage in relevant aspects of their life and also their enjoyment of these aspects; in addition, the individual importance of each aspect is assessed. It has been validated in both in out-patients' presenting to general practice with upper gastrointestinal complaints and in a randomly chosen population-based sample. The NDI has been shown to be a reliable and valid disease-specific index for dyspepsia, measuring symptoms and health-related quality of life [13].

GAD-7

The GAD-7 is a validated 9-item questionnaire which has been demonstrated to be an efficient tool for screening for generalized anxiety disorder and assessing its severity in clinical practice and research [14].

Patient Health Questionnaire-9

The PHQ-9 is the 9-item validated depression scale of the Patient Health Questionnaire [15].

References

- 1 Mikocka-Walus, A, Turnbull, D, Moulding, N, Wilson, I, Andrews, JM, Holtmann, G. Psychological comorbidity and complexity of gastrointestinal symptoms in clinically diagnosed irritable bowel syndrome patients. *J Gastroenterol Hepatol* 2008;**23**:1137-43.
- 2 Spiller, R, Aziz, Q, Creed, F, Emmanuel, A, Houghton, L, Hungin, P, Jones, R, Kumar, D, Rubin, G, Trudgill, N, Whorwell, P. Guidelines on the irritable bowel syndrome: mechanisms and practical management. *Gut* 2007;**56**:1770-98.
- 3 Tyler, K, Moriceau, S, Sullivan, RM, Greenwood-van Meerveld, B. Long-term colonic hypersensitivity in adult rats induced by neonatal unpredictable vs predictable shock. *Neurogastroenterol Motil* 2007;**19**:761-8.
- 4 Leserman, J, Drossman, DA. Relationship of abuse history to functional gastrointestinal disorders and symptoms: some possible mediating mechanisms. *Trauma, violence & abuse* 2007;**8**:331-43.
- 5 Barreau, F, Ferrier, L, Fioramonti, J, Bueno, L. New insights in the etiology and pathophysiology of irritable bowel syndrome: contribution of neonatal stress models. *Pediatr Res* 2007;**62**:240-5.
- 6 Alander, T, Heimer, G, Svardsudd, K, Agreus, L. Abuse in Women and Men with and without Functional Gastrointestinal Disorders. *Digestive diseases and sciences* 2007.
- 7 Gwee, KA, Leong, YL, Graham, C, McKendrick, MW, Collins, SM, Walters, SJ, Underwood, JE, Read, NW. The role of psychological and biological factors in postinfective gut dysfunction. *Gut* 1999;**44**:400-6.
- 8 Palsson, OS, Drossman, DA. Psychiatric and psychological dysfunction in irritable bowel syndrome and the role of psychological treatments. *Gastroenterology clinics of North America* 2005;**34**:281-303.
- 9 Zarate, N, Farmer, AD, Grahame, R, Mohammed, SD, Knowles, CH, Scott, SM, Aziz, Q. Unexplained gastrointestinal symptoms and joint hypermobility: is connective tissue the missing link? *Neurogastroenterology and motility : the official journal of the European Gastrointestinal Motility Society* 2010;**22**:252-e78.
- 10 Wiklund, IK, Fullerton, S, Hawkey, CJ, Jones, RH, Longstreth, GF, Mayer, EA, Peacock, RA, Wilson, IK, Naesdal, J. An irritable bowel syndrome-specific symptom questionnaire: development and validation. *Scandinavian journal of gastroenterology* 2003;**38**:947-54.
- 11 Labus, JS, Bolus, R, Chang, L, Wiklund, I, Naesdal, J, Mayer, EA, Naliboff, BD. The Visceral Sensitivity Index: development and validation of a gastrointestinal symptom-specific anxiety scale. *Aliment Pharmacol Ther* 2004;**20**:89-97.
- 12 Labus, JS, Mayer, EA, Chang, L, Bolus, R, Naliboff, BD. The central role of gastrointestinal-specific anxiety in irritable bowel syndrome: further validation of the visceral sensitivity index. *Psychosom Med* 2007;**69**:89-98.
- 13 Talley, NJ, Haque, M, Wyeth, JW, Stace, NH, Tytgat, GN, Stanghellini, V, Holtmann, G, Verlinden, M, Jones, M. Development of a new dyspepsia impact scale: the Nepean Dyspepsia Index. *Alimentary pharmacology & therapeutics* 1999;**13**:225-35.
- 14 Spitzer, RL, Kroenke, K, Williams, JB, Lowe, B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med* 2006;**166**:1092-7.
- 15 Stafford, L, Berk, M, Jackson, HJ. Validity of the Hospital Anxiety and Depression Scale and Patient Health Questionnaire-9 to screen for depression in patients with coronary artery disease. *General hospital psychiatry* 2007;**29**:417-24.
- 16 Beighton, P. Hypermobility scoring. *British journal of rheumatology* 1988;**27**:163.
- 17 Hakim, AJ, Grahame, R. A simple questionnaire to detect hypermobility: an adjunct to the assessment of patients with diffuse musculoskeletal pain. *International journal of clinical practice* 2003;**57**:163-6.
- 18 Farmer, AD, Douthwaite, H, Gardiner, S, Aziz, Q, Grahame, R. A novel in vivo skin extensibility test for joint hypermobility. *The Journal of rheumatology* 2010;**37**:1513-8.
- 19 McCrae, RR, Costa, PT. *Personality in adulthood : a five-factor theory perspective*. New York ; London: Guilford Press 2003.
- 20 Soto, CJ, John, OP, Gosling, SD, Potter, J. The developmental psychometrics of big five self-reports: acquiescence, factor structure, coherence, and differentiation from ages 10 to 20. *J Pers Soc Psychol* 2008;**94**:718-37.