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Organization of neurogastroenterology and motility units with a multidisciplinary, patient-centered perspective

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**Abbreviations:** Irritable bowel syndrome (IBS). Disorders of gut-brain interaction (DGBI). Gastrointestinal (GI).


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ABSTRACT

Neurogastroenterology and Motility is a subspecialty of Gastroenterology dedicated to the management of gastrointestinal (GI) motor diseases and disorders of gut-brain interaction (DGBI). Both types of conditions may impair the nutritional status of the patients. In the case of motility disorders, because a deficient gastrointestinal motility may impair the correct digestion and absorption of foods. In DGBI because development of gastrointestinal symptoms may impair the correct nutrition of the patient. In both cases, different studies have shown that patients start restrictive diets by their own, without supervision of a dietician, leading to nutritional deficits in many cases. Likewise, psychological factors like stress situations or anxiety may trigger gastrointestinal symptoms in these patients, mainly in those with DGBI. Recent studies comparing a patient-centered approach that includes medical treatment, dietary modifications, and behavioural interventions with the gastroenterologist-only standard care, have shown a greater proportion of symptom improvement, psychological state and quality of life, as well as reduced costs in patients allocated to the multidisciplinary treatment. In conclusion, there is growing evidence in favour of dietary and behavioural interventions by specialized professionals, coupled with an appropriate medical evaluation and treatment by a gastroenterologist. Hence, the importance to develop reference units in which comprehensive and individualized management can be offered. Multidisciplinary models improve clinical outcomes and patient satisfaction, which should result in a reduction of direct and indirect costs.
Neurogastroenterology and Motility is a subspecialty of Gastroenterology dedicated to the management of gastrointestinal (GI) motor diseases and disorders of gut-brain interaction (DGBI). Motor disorders include a large list of disturbances that may affect any segment of the GI tract, from esophageal motor disorders to ano-rectal motor disorders. The term DGBI replaced the traditional denomination “Functional GI Disorders” with the publication of Rome IV in 2016. This definition is more consistent with the evolving understanding of the multiple pathophysiological processes that determine the development of these disorders, which include, in addition to altered motility, visceral hypersensitivity, microscopic inflammation, and alteration of immune function, gut microbiota or central nervous system processing.

Prevalence of GI motor diseases is highly variable; although chronic intestinal pseudo-obstruction is rare, constipation due to colonic inertia or Ogilvie syndrome is relatively common. DGBIs are extremely prevalent conditions; results of the Rome Foundation global study estimate that the prevalence of these disorders is around 40% worldwide.

Annual direct costs derived from the care of patients with Irritable Bowel Syndrome (IBS) is estimated at US$1 billion in the United States, £1.3–2 billion in the United Kingdom, 3–4 billion euros in Germany and US$2 billion in China. In addition, they are associated with indirect costs due to absenteeism, presenteeism and overall work productivity loss.

Unfortunately, because of the complex pathophysiological mechanisms underlying these disorders, there is no universally effective treatment for many of these patients. Satisfaction with the care received may be an indirect indicator of quality of care. According to the literature, a significant proportion of patients suffering these conditions are dissatisfied. This leads to repeated consultations and unnecessary explorations that produce a significant consumption of health resources. In addition, patients often search for non-medical alternative therapies. In this situation, adopting multidisciplinary, evidence-based approaches is necessary.
Patients with motor disorders or DGBIs may develop malnutrition due to severe motility dysfunction or disabling symptoms that are exacerbated by meals\(^9\). On the other hand, DGBIs are frequently associated with psychological and somatic comorbidities such as anxiety, depression, fibromyalgia or chronic fatigue\(^10\). Furthermore, GI symptoms can be the clinical presentation of psychiatric diseases, such as eating disorders\(^11\). Hence, it is necessary to promote a care model that guarantees a multidisciplinary approach within Neurogastroenterology and Motility Units. Nowadays, there are no quality standards and specific recommendations about these units.

Recent trials from Australia have shown that a patient-centred approach that includes medical treatment, dietary modifications, and behavioural interventions is the model with greatest probability of success. Hence, in these studies 84% patients in the multidisciplinary care group versus 57% patients in the standard-care group had global symptom improvement. Twelve months after the completion of treatment, integrated multidisciplinary clinical care achieved a greater proportion of patients with improvement of symptoms, psychological state and quality of life, as well as reduced costs, compared with gastroenterologist–only care\(^12,13\).

According to this model of care, the initial approach by the gastroenterologist should include a careful history, as well as performing a physical examination. Screening tests may be required to exclude organic diseases when alarm symptoms are detected \(^3\). Besides this, GI motility evaluation may be required in a subgroup of patients. Advances in the identification of specific motor dysfunctions, allow an improvement in therapeutic management. Once the diagnosis is established, the goal of medical treatment will be to relieve symptoms and reduce their impact on quality of life. However, available treatments, including prokinetics, spasmolytics or neuromodulators, often do not achieve complete clinical remission\(^5\). Therefore, it is important to inform the patient that pharmacological therapy is, sometimes, just one of the components of a multimodal approach.

In DGBIs, patients often associate symptom onset or worsening with eating a meal. Often, the patient adopts dietary restrictions and food avoidance before being
evaluated by physician. A review published by the American College of Gastroenterology noted that up to 90% of IBS patients exclude certain foods in the hope of avoiding or improving their GI symptoms\textsuperscript{14}. For this reason, a multimodal approach including dieticians for the control of nutritional status is required.

The dietary advice proposed by the National Institute for Health and Care Excellence (NICE) is a reasonable and simple first approach. Specific trials have shown an equivalent efficacy to that of a diet low in fermentable oligosaccharides, disaccharides, monosaccharides and polyols (FODMAP) in patients with mild symptoms\textsuperscript{15}. If general dietary advice fails, the low FODMAP diet is the most evidence-based dietary option\textsuperscript{16}. Augmentation of small intestinal fluids and colonic gas production is the mechanism by which FODMAPs are proposed to provoke symptoms\textsuperscript{17}. This intervention involves three phases: withdrawal, reintroduction and personalization. The second and third phases are essential to individualize treatment and avoid unnecessary dietary restrictions with undesirable effects. Given its complexity, supervision by a nutritionist with special interest in motor diseases and DGBIs is recommended. Diets low in lactose or gluten may be considered in some patients under specialist supervision\textsuperscript{9}.

On the other hand, nutritional intervention is cornerstone in the management of motor disorders such as gastroparesis or chronic intestinal pseudo-obstruction. Calorie-deficient diets were reported by up to 64% of patients with gastroparesis due to a lack of supervision in the dietary modifications introduced by patients themselves. When a patient with gastroparesis does not tolerate a sufficient oral diet and has ongoing unintentional weight loss despite adequate dietary recommendations, enteral or parenteral nutrition should be considered. In contrast to this, a significant number of overweight or obese patients with this disease have been described, suggesting the importance of further investigation about the implications of the nutritional status in gastroparetic patients. Management of these motor disorders requires an interdisciplinary approach, with close collaboration between gastroenterologists and specialists in nutrition to supervise diet, control nutritional status, and intensify nutritional support if needed\textsuperscript{18}.
In addition to standard medical care by the gastroenterologist and nutritional management, mental health constitutes the other fundamental pillar for successful management of these patients\textsuperscript{5,9}. If a coexisting eating disorder (anorexia, bulimia, binge eating disorder or ARFID) is suspected, a psychiatric evaluation is essential because restrictive dietary therapies are contraindicated in these patients\textsuperscript{11}.

In DGBIs, the bio-phsyco-social model explain the relationship between multiple social, psychological and biological factors involved in the development of symptoms\textsuperscript{19,20}. The presence of psychological comorbidities such as anxiety and hypervigilance are related to a greater severity of gastrointestinal symptoms and a worse therapeutic response\textsuperscript{21}. Psychoeducation of the patient with DGBIs is key to give insight on the relationships between psychological factors and the gastrointestinal symptoms, and the rationale for psychological treatment in these conditions. The mental health professional must have specific training and knowledge on GI motor disorders and DGBIs to assess the patient in an appropriate clinical context. The objectives of psychological approach are to identify triggering factors, establish a rational model of the disease, improve the stress response and modify maladaptive psychological responses\textsuperscript{22}.

Behavioural therapies for DGBIs include cognitive behavioural therapy (CBT), gut-directed hypnotherapy, interpersonal psychodynamic psychotherapy, and various relaxation techniques\textsuperscript{9}. The evidence supporting its safety and clinical benefit has become increasingly strong over the past decade. CBT-based interventions and gut-directed hypnotherapy have the largest evidence and are the most efficacious in the long term\textsuperscript{23}.

Taking together all these evidences, Neurogastroenterology and Motility Units should include a Motility Laboratory with gastroenterologists, nurses and technicians specialised in motility disorders, as well as at least one dietitian and a mental health professional with specific training in these disorders. These multidisciplinary Units allow coordinated care between different specialists in order to provide a precise diagnostic and therapeutic plan. The characteristics and organization of each unit will depend on its location, the available resources and the requirements of each centre.
In conclusion, disorders in the field of Neurogastroenterology and Motility are challenging and require a multimodal approach. In recent times, a growing interest in this topic has developed, even in non-scientific environments, with the emergence of unproven therapeutic alternatives. There is robust evidence in favour of dietary and behavioural interventions by specialized professionals, coupled with an appropriate medical evaluation and treatment by a gastroenterologist. Hence, the importance to develop reference units in which comprehensive and individualized management can be offered. Multidisciplinary models improve clinical outcomes and patient satisfaction, which should result in a reduction of direct and indirect costs.

REFERENCES


