



## Editorial

## Childhood constipation in Taiwan: Do we underestimate its existence?

Bowel movement (BM) is a physiological activity, which is variable depending on the underlying factors in terms of daily food/water consumption, physical activity, environmental change, psychological stress, comorbidity, used drugs, etc. However, a lot of people in society are very embarrassed about the less BM, namely constipation. Actually, constipation is not only defined by the lower BM frequency but also extensively includes BM straining, hard stools, unproductive calls, incomplete evacuation, etc.<sup>1</sup> Most importantly, there is need to know what is the so-called normal BM frequency in the society. Among the Asia countries, Indian people with non-complaint of lower abdomen symptoms usually have the BM as 1–2/day. Over 90% of people of Thailand and Singapore report their BM frequency as 3/day to 3/week, whereas nearly 60% of them pass once daily. Koreans also exhibit this BM pattern and 41% of them have once daily. Meanwhile, 84% of Chinese nonpatient community subjects display BM once daily, with a mean value of 7/week. Also, 90% of them pass formed soft stool, 77% finish it in the morning and only 3.8% report constipation and 1.1% diarrhea, respectively. Accordingly, it is obvious that the BM frequency ranging from 3/day to 3/week is accepted as normal for most Asia people.<sup>2</sup>

With regard to children, the above constipation knowledge has been somewhat modified based on recently released NICE guidance in consideration of infants or toddlers unable to complain of constipation-related symptoms.<sup>3</sup> Worldwide review indicated that the prevalence of childhood constipation in general population ranges 0.7–29.6%, with median value 8.9%, whereas that of BM frequency <3/week similarly ranges 0.7–29.6% with median value 10.4%.<sup>4</sup> In that review, two reports based on the Rome II questionnaire were cited from Asia, with 29.6% in Hong Kong, 18.5% in Japan and both showing girl predominance.<sup>4</sup> Until now, it appears that no Taiwan childhood constipation prevalence has been well reported. Based on an Iowa definition of childhood constipation and published in this issue, Wu et al.<sup>5</sup> have conducted a large-scale nationwide survey in examining the constipation prevalence of elementary school children. The questionnaire, mainly answered by the children's parents and guardians, was generally and evenly distributed around the whole Taiwan. The authors finally obtained the childhood constipation prevalence as 32.2%, showing girl predominance (36.1% vs. 29.2%,  $p < 0.01$ ). In addition, the authors reported a lower prevalence (24.0%) in Eastern Taiwan. Unfortunately, they did not further analyze whether this value was different from other

areas of Taiwan *via* a statistical statement. Overall, the constipation prevalence of Taiwan elementary school children is surprisingly higher than our expectation. However, this value with female predominance remains comparable to Hong Kong Chinese although based on different definitions. In fact, the Rome II criteria, mainly fitted to adults, are usually too restrictive to screen childhood constipation because 16% of children based on Iowa defined constipation were not correctly recognized by Rome II criteria.<sup>6</sup> Alternatively, a fundamental difference in constipation exists between children and adults.

Among the Taiwan childhood constipation survey, it is likely that many of them were nonpatients. It means that the responders were constipated, however, they never sought or consumed medical resources to this bothersome event. Once constipation is established based on recommended criteria, the parents may urge to know what will the future progression and impact of constipation be on their suffered children. Literature indicates that childhood constipation usually has a good outcome. At the age of 16 years, only one-fourth remain constipated, whereas the poor prognostic factors include older age onset, long-delayed and lower defecation frequency, etc.<sup>7</sup> Regarding the nutrition situation, constipated children often show normal weight and height, however, they probably have history of poor diet or insufficient fluid intake.<sup>3</sup> Wu et al.<sup>5</sup> indicate that Taiwan constipated children had a significantly lower body mass index, however, owing to the large-scale study, this small numerical difference may be considered clinically insignificant. Interestingly, the authors reported less intake of some kinds of food servings among the constipated children: vegetables, fruits, soybean products, and eggs. From the viewpoint of clinical practice, these observed messages of the community constipation survey cannot be applied individually to constipated children. For example, childhood constipation is not exactly functional in nature because some constipated children also have closely coexisting urological problems in terms of urinary incontinence, bed-wetting, and urinary tract infection.<sup>3,8</sup> Recently, the pathophysiology of childhood constipation has focused on beginning from a painful evacuation. It means that an initial painful BM because of any reasons often results in delayed and held BM and finally leads to habitual constipation and even stool impaction.<sup>9</sup> Concerning the psychological effect, the existing constipation chronicity of children living in their family, school, and society may have a profound impact on their emotional growth and development.<sup>10</sup> Additionally, they probably consume excessive medical resources if the parents are also very embarrassed about

the constipation-related behaviors of their children.<sup>3</sup> Consequently, psychological support to families of constipated children is extraordinarily needed.

Briefly, recommended treatments for constipated children currently include structural family education, removal of stool impaction, modified dietary constituents, behavioral modification, optimal laxatives, using encouragement and reward system, etc.<sup>3,10</sup> From an investigator's perspective, it looks necessary to convey these important messages to the enrolled subjects and their parents, particularly regarding the alarm symptoms and signs. In conclusions, childhood constipation is very common in our society. We probably underestimate its existence. Apart from providing concern to constipated children, correct education, life and diet modifications, and psychological support to the sufferers' parents are most likely important for finding early any associated organic disorders and diminishing the future psychological impact on these constipated children.

Full-Young Chang  
 Division of Gastroenterology  
 Taipei Veterans General Hospital  
 Taipei, Taiwan, ROC  
 National Yang-Ming University  
 Department of Medicine, School of Medicine  
 Taipei, Taiwan, ROC  
 E-mail address: changfy@vghtpe.gov.tw

## References

1. Longstreth GF, Thompson WG, Chey WD, Houghton LA, Mearin F, Spiller RC. Functional bowel disorders. *Gastroenterology* 2006;**130**:1480–91.
2. Chang FY, Lu CL, Chen TS. The current prevalence of irritable bowel syndrome in Asia. *J Neurogastroenterol Motil* 2010;**16**:389–400.
3. Bardisa-Ezcurra L, Ullman R, Gordon J, Guideline Development Group. Diagnosis and management of idiopathic childhood constipation: summary of NICE guidance. *BMJ* 2010;**340**:c2585.
4. van den Berg MM, Benninga MA, Di Lorenzo C. Epidemiology of childhood constipation: a systematic review. *Am J Gastroenterol* 2006;**101**:2401–9.
5. Wu TZ, Chen LK, Pan WH, Tang RB, Hwang SJ, Wu L, et al. Constipation in Taiwan elementary school students: a nationwide survey. *J Chin Med Assoc* 2011;**74**:57–61.
6. Voskuil WP, Heijmans J, Heijmans HS, Taminiu JA, Benninga MA. Use of Rome II criteria in childhood defecation disorders: applicability in clinical and research practice. *J Pediatr* 2004;**145**:213–7.
7. Bongers ME, van Wijk MP, Reitsma JB, Benninga MA. Long-term prognosis for childhood constipation: clinical outcomes in adulthood. *Pediatrics* 2010;**126**:e156–62.
8. Nelhans N, Williams R. Education key in tackling childhood constipation. *Practitioner* 2010;**254**:22–6.
9. Youssef NN, Di Lorenzo C. Childhood constipation: evaluation and treatment. *J Clin Gastroenterol* 2001;**33**:199–205.
10. Coccorullo P, Quitadamo P, Martinelli M, Staiano A. Novel and alternative therapies for childhood constipation. *J Pediatr Gastroenterol Nutr* 2009;**48**(Suppl 2):S104–6.