

## Obesity and chronic diarrhea: a new syndrome?

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Obesity has become a global epidemic, and the prevalence of obesity has increased to pandemic levels over the past 50 years.<sup>[1]</sup> According to the statistics of the World Health Organization (WHO), there are >2.1 billion overweight and obese adults worldwide, 1.5 billion of whom are overweight and 640 million of whom are obese.<sup>[2]</sup> It is predicted that 57.8% (3.3 billion people) of the world's adult population will have a body mass index of 25 kg/m<sup>2</sup> or higher by 2030, which is a huge challenge in both developed and developing countries.<sup>[3,4]</sup> In the United States, the prevalence of adult obesity and severe obesity continues to increase; it is estimated that by 2030, nearly one in two adults will have obesity, and nearly one in four adults is projected to have severe obesity.<sup>[5]</sup> It has been reported that the occurrence of overweight and obesity in residents aged ≥18 years are 34.3% and 16.4%, those in children and adolescents aged 6 to 17 years are 11.1% and 7.9%, and those in children under 6 years old are 6.8% and 3.6%, respectively.<sup>[6]</sup> The problem of overweight and obesity incidence in children and adolescents has increased at an alarming rate, posing a great threat to society as a whole.<sup>[7]</sup> Therefore, finding an effective means to control the growth of obesity and explore new approaches in both scientific research and public policy is urgently needed.

Noncommunicable diseases (NCDs) are the leading cause of mortality and premature disability, including cardiovascular diseases, metabolic disease, and cancer, which account for >70% of early deaths worldwide.<sup>[8]</sup> Obesity is a major risk factor for NCDs,<sup>[1]</sup> which are associated with many diseases, including type two diabetes mellitus, cardiovascular diseases, and digestive diseases. In China, overweight and obesity incidences contributed to 11.1% of deaths associated with NCDs in 2019, an increase from 5.7% in 1990.<sup>[9]</sup> Thus, effective control and reversal of obesity can significantly reduce the obesity-related burden on health and society. Obesity is also a direct or indirect cause of digestive system diseases. For example, obesity can lead to nonalcoholic fatty liver and is closely related to a series of digestive system diseases, including reflux esophagitis and diarrhea.<sup>[10,11]</sup>

Diarrhea is reported as one of the most common digestive symptoms associated with obesity<sup>[12-14]</sup> seriously affects the quality of life and health of patients, and has an incidence that is as high as 30%.<sup>[15]</sup> Unfortunately, since it was first reported in the literature, few further studies have focused on the phenomenon of diarrhea as a ramification of obesity, and it has thus not attracted adequate attention in clinical practice. In most cases, diarrhea is treated in isolation, and there is a lack of targeted and effective means for diagnosis and treatment. Research on its mechanism is more limited. Only a few studies have explored intestinal inflammation and mucosal permeability.<sup>[16-18]</sup>

Although the pathogenesis of obesity is complex and the factors leading to diarrhea are diverse, it is generally believed that obesity is caused by the increased absorption of nutrients, while diarrhea can cause the loss of nutrients, and long-term diarrhea will lead to weight loss. However, conventional cognition cannot explain chronic diarrhea without organic lesions in obese patients. Therefore, for better understanding and further study, we should view and manage this phenomenon, which is usually neglected in clinical practice, from an overall perspective.

Based on research and clinical practice, we propose that obesity accompanied by chronic diarrhea but without organic lesions should be considered as a new syndrome, and we temporarily define it as Linghu's obesity-diarrhea syndrome. The criteria are as follows: (1) patients are obese: the diagnosis of obesity refers to the WHO criteria of obesity<sup>[19]</sup>; (2) patients are suffering from chronic diarrhea: the diagnosis of chronic diarrhea refers to the guidelines for chronic diarrhea<sup>[20]</sup>; and (3) no organic lesions that can clearly be identified as causative factors for diarrhea are found in the routine examination, including endoscopy and abdominal computed tomography or magnetic resonance imaging, and also there are no infectious pathogens.

Further clinical and basic research on epidemiology, pathogenesis and treatment methods is needed to reveal

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the nature and find an effective management strategy for this new syndrome. We believe that future systematic research will facilitate clinicians to obtain scientific management strategies and help patients return to a healthy living state.

### Conflicts of interest

None.

### References

- Blüher M. Obesity: global epidemiology and pathogenesis. *Nat Rev Endocrinol* 2019;15:288–298. doi: 10.1038/s41574-019-0176-8.
- World Health Organization. Obesity and overweight. WHO; 2015. Available from: <http://www.who.int/mediacentre/factsheets/fs311/en/>.
- Finkelstein EA, Khavjou OA, Thompson H, Trogon JG, Pan L, Sherry B, *et al.* Obesity and severe obesity forecasts through 2030. *Am J Prev Med* 2012;42:563–570. doi: 10.1016/j.amepre.2011.10.026.
- González-Muniesa P, Martínez-González MA, Hu FB, Despres JP, Matsuzawa Y, Loos RJJ, *et al.* Obesity *Nat Rev Dis Primers* 2017;3:17034. doi: 10.1038/nrdp.2017.34.
- Ward ZJ, Bleich SN, Cradock AL, Barrett JL, Giles CM, Flax C, *et al.* Projected U.S. state-level prevalence of adult obesity and severe obesity. *N Engl J Med* 2019;381:2440–2450. doi: 10.1056/NEJMsa1909301.
- The State Council Information Office of the People's Republic of China. Press briefing for the Report on Chinese Residents' Chronic Diseases and Nutrition 2020; December 24, 2020 (in Chinese). Available from: [http://www.gov.cn/xinwen/2020-12/24/content\\_5572983.htm](http://www.gov.cn/xinwen/2020-12/24/content_5572983.htm) [Accessed December 26, 2020].
- NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: A pooled analysis of 2416 population-based measurement studies in 128-9 million children, adolescents, and adults. *Lancet* (London, England) 2017;390:2627–2642. doi: 10.1016/s0140-6736(17)32129-3.
- World Health Organization. Noncommunicable Diseases Progress Monitor, 2017. WHO; 2017. Available from: <https://www.who.int/nmh/publications/ncd-progress-monitor-2017/en/>.
- Pan XF, Wang L, Pan A. Epidemiology and determinants of obesity in China. *Lancet Diabetes Endocrinol* 2021;9:373–392. doi: 10.1016/s2213-8587(21)00045-0.
- Camilleri M, Malhi H, Acosta A. Gastrointestinal complications of obesity. *Gastroenterology* 2017;152:1656–1670. doi: 10.1053/j.gastro.2016.12.052.
- Eslick GD. Gastrointestinal symptoms and obesity: a meta-analysis. *Obes Rev* 2011;13:469–479. doi: 10.1111/j.1467-789X.2011.00969.x.
- Levy RL, Linde JA, Feld KA, Crowell MD, Jeffery RW. The association of gastrointestinal symptoms with weight, diet, and exercise in weight-loss program participants. *Clin Gastroenterol Hepatol* 2005;3:992–996. doi: 10.1016/s1542-3565(05)00696-8.
- Aro P, Ronkainen J, Talley NJ, Storskrubb T, Bolling-Sternevald E, Agréus L. Body mass index and chronic unexplained gastrointestinal symptoms: an adult endoscopic population based study. *Gut* 2005;54:1377–1383. doi: 10.1136/gut.2004.057497.
- Talley NJ, Quan C, Jones MP, Horowitz M. Association of upper and lower gastrointestinal tract symptoms with body mass index in an Australian cohort. *Neurogastroenterol Motil* 2004;16:413–419. doi: 10.1111/j.1365-2982.2004.00530.x.
- Delgado-Aros S, Locke GR, Camilleri M, Talley NJ, Fett S, Zinsmeister AR, *et al.* Obesity is associated with increased risk of gastrointestinal symptoms: a population-based study. *Am J Gastroenterol* 2004;99:1801–1806. doi: 10.1111/j.1572-0241.2004.30887.x.
- Sadik R, Abrahamsson H, Ung KA, Stotzer PO. Accelerated regional bowel transit and overweight shown in idiopathic bile acid malabsorption. *Am J Gastroenterol* 2004;99:711–718. doi: 10.1111/j.1572-0241.2004.04139.x.
- Delgado-Aros S, Camilleri M, Garcia MA, Burton D, Busciglio I. High body mass alters colonic sensory-motor function and transit in humans. *Am J Physiol Gastrointest Liver Physiol* 2008;295:G382–G388. doi: 10.1152/ajpgi.90286.2008.
- Teixeira TF, Souza NC, Chiarello PG, Franceschini SC, Bressan J, Ferreira CL, *et al.* Intestinal permeability parameters in obese patients are correlated with metabolic syndrome risk factors. *Clin Nutr* 2012;31:735–740. doi: 10.1016/j.clnu.2012.02.009.
- WHO. Obesity: Preventing and Managing the Global Epidemic. Geneva, Switzerland: World Health Organization; 2000.
- Arasaradnam RP, Brown S, Forbes A, Fox MR, Hungin P, Kelman L, *et al.* Guidelines for the investigation of chronic diarrhoea in adults: British society of gastroenterology, 3rd edition. *Gut* 2018;67:1380–1399. doi: 10.1136/gutjnl-2017-315909.

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