

Release date: xxx, 2021

Expiration date: xxx, 20xx

Sex- and Gender-related Differences in Common Functional Gastroenterologic Disorders

Adil E. Bharucha, MBBS, MD,¹ Bradley Anderson, MD,¹ Susrutha Puthanmadhom Narayanan, MBBS¹

¹Division of Gastroenterology and Hepatology, Mayo Clinic, Rochester, Minnesota

Correspondence: Adil E. Bharucha, MD, Clinical Enteric Neuroscience Translational and Epidemiological Research Program (C.E.N.T.E.R.), Mayo Clinic, 200 First St SW, Rochester, MN 55905
Telephone: 507-284-2687 Fax: 507-538-5820 bharucha.adil@mayo.edu

Conflicts of Interest: Dr. Bharucha has a patent for a anorectal manometry device with royalties paid to Medspira Inc, and pending patents for anorectal manometry probe fixation device licensed to Medtronic Inc and an anal insert device developed jointly with Minnesota Medical Technologies. Drs. Anderson and Puthanmadhom Narayanan have nothing to disclose.

Off-label drugs:

Learning Objectives: On completion of this article, you should be able to: (1) recall the sex differences in prevalence, clinical presentation, gastrointestinal sensation and motility, and treatment response in common functional gastrointestinal disorders, (2) learn the salient mechanisms that explain gender and sex differences in functional gastrointestinal disorders and (3) assess and treat functional gastrointestinal disorders in men and women differently based on the literature summarized here

Questions about sex differences in functional gastrointestinal disorders:

1. Which of the following statements is most accurate regarding sex-based differences in the prevalence of functional dyspepsia (FD) and IBS?

- a. Both IBS and FD are twice as common in women than men
- b. IBS is twice as common and FD is slightly more common in women than men
- c. While IBS is twice as common in women than men, prevalence of FD is not different between the two sexes
- d. The prevalence of IBS and FD is not different between men and women
- e. It is not known if the prevalence of IBS and FD are different between men and women

Sex-based differences are more pronounced in IBS than in FD. ^{1,2}

Correct Answer: 1. b

2. Which of the following statements regarding post-infectious IBS is most accurate?

- a. Sex does not affect the risk of developing IBS after acute gastroenteritis
- b. Women have a higher risk of developing IBS after acute gastroenteritis, but larger studies controlling for other known risk factors are necessary to establish that sex is an independent risk factor for postinfectious IBS
- c. Men have a higher risk of developing IBS after acute gastroenteritis and this is related to increased gastrointestinal inflammation in men than women
- d. Female sex is an independent risk factor for post-infectious IBS and the underlying mechanisms are well understood
- e. There is no evidence related to sex differences in post-infectious IBS

Female sex, younger age, and psychological distress during or before acute gastroenteritis, and more severe acute enteritis are risk factors for postinfectious IBS. Whether female sex is an independent risk factor for postinfectious IBS after correction for other risk factors, especially psychosocial stressors. Is unknown.³⁻⁵

Correct Answer: 2. b

3. Compared to men, what is the likelihood of the following symptoms - bloating, constipation, and anxiety – in women with IBS?

- a. lower, lower, no difference
- b. greater, lower, lower
- c. no difference, lower, greater
- d. greater, greater, greater
- e. lower, lower, greater

Among IBS patients, bloating, constipation, and anxiety are more common in women while diarrhea is more common in men.^{1,6,7}

Correct Answer: 3. d

4. Which of the following medications are FDA-approved for use only in women with IBS?

- a. Alosetron and tegaserod
- b. Loperamide and prucalopride

- c. Ondansetron and PEG
- d. Ramosetron and linaclotide
- e. Eluxadolone and bisacodyl

Alosetron and tegaserod are only approved in women with IBS, primarily because these drugs were more extensively evaluated in women.⁸ None of the other options listed here are restricted by sex.

Correct Answer: 4. a

5. Which of the following sentences regarding sex differences in the response to stress in humans is most accurate?

- a. Women have greater visceral sensitivity, HPA and autonomic response to stress
- b. Men have greater visceral sensitivity, HPA and autonomic response to stress
- c. There is insufficient data to answer this question
- d. There are no sex related differences in the HPA and autonomic response to stress
- e. Women have greater visceral sensitivity while men have greater HPA and autonomic responses to stress

Compared to men, women with IBS are more likely to have increased visceral sensitivity, which is evaluated by assessing the perception of balloon distention. Compared with sex-matched healthy controls, the CRF-induced ACTH release and the ACTH-evoked cortisol response was increased in male IBS patients and decreased in women with IBS.⁹⁻¹¹

Correct Answer: 5. e

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