

Original Article

Causes of constipation during pregnancy and health management

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Abstract: Constipation during pregnancy has adverse effects on the physical and mental health of the pregnant women and the normal development of the fetus. The reasons for constipation during pregnancy, include female physiological structure, previous history of anorectal diseases, hormone changes, adverse lifestyle, and psychological factors. The most effective way to prevent constipation during pregnancy is to develop good habits. Clinical treatment is to improve the quality of life and control symptoms for serious cases. In this article, we reviewed the reason and mechanism of constipation during pregnancy and summarized the principles and measures to prevent constipation for pregnant women.

Keywords: Pregnancy, constipation, causes, clinical strategies

Introduction

Constipation and its hazards during pregnancy

Constipation refers to infrequent or hard bowel movements under a variety of pathogenic factors [1]. As one special physiological stage for women, pregnancy has increased occurrence of constipation. Multiple factors contribute to the process, including physiological structure, psychological, physiological hormones, and other factors. The prevalence rate of constipation during pregnancy is 11%-38% [2, 3]. Cullen et al reported that the incidence of constipation during pregnancy can reach more than 50%, which is the second only to nausea during pregnancy and is one of the most common gastrointestinal dysfunctions [4]. In 2018, Ferdinande et al reported that the incidence of constipation during pregnancy and the postpartum period was even as high as 60.7% [5]. The number of pregnancy and cesarean sections are relevant factors for constipation during pregnancy [6-8]. Multiparas are more prone to constipation than primipara [9].

There are high risks for both mothers and infants when constipation occurs during pregnancy. First, it increases the incidence of ano-

rectal diseases. Bleeding with hemorrhoids frequently leads to anemia. Two-thirds of pregnant women both during pregnancy and postpartum suffer from anal symptoms, and constipation is the most important risk factor [5]. Second, it also increases the physical and psychological burden for pregnant women, which may contribute to depression and anxiety. Third, it even increases the risk of abortion and premature birth, and other severe complications, which endanger the safety of mothers and infants. It was reported that small intestinal obstruction can occur during pregnancy and if so, emergency surgery should be performed [10]. So, in pregnancy constipation can have serious harm for mothers and infants.

Causes and possible mechanisms of constipation during pregnancy

Related factors before pregnancy: The global overall incidence of constipation ranges from 0.7% to 79%, and the average is 16%. More women suffer from constipation than men. The mean and median prevalence ratios of chronic constipation in women and men globally are 2.1 and 1.5, respectively [11]. In 2011, an epidemiological investigation showed that the prevalence of men's and women's functional

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constipation was 4% and 8%, respectively in China. The prevalence of functional constipation in women of all age groups was higher than in male [12]. In terms of the female physiological structure, the uterus squeezes the rectum inward toward the pelvic cavity, which increases the curvature of the rectum. High progesterone can reduce the transmission rate of the small intestine and colon, so that the total intestinal transmission time of women is longer than that of men. For multiparas, the female pelvic floor muscle and nerve plexus are damaged to some extent [13, 14]. For psychological factors, an epidemiological survey in Sweden for 28 years showed that women have significantly higher than male incidence of gastrointestinal diseases in a young and middle-aged gastrointestinal symptoms survey. Neurasthenia and fatigue are the main causes of gastrointestinal diseases and gastrointestinal diseases have a significant correlation with fear and anxiety, and panic disorder [15]. Women patients are more likely to have the occurrence of constipation symptoms than men [16]. In addition, having hemorrhoids, an anal fissure, anal fistula, perianal eczema and other anorectal diseases before pregnancy will increase the risk of constipation during pregnancy.

Related factors during pregnancy: During pregnancy, the uterus becomes enlarged and begins to compress the rectum as the fetus develops. Defecation needs muscle assistance. Abdominal muscle strength is on the wane with abdominal pressure increases. With the fetal growth and development, the expanding uterus compress the abdominal organs, leading to obstruction of the sigmoid colon and results in frequent constipation [9]. In addition, constipation during pregnancy is associated with elevated progesterone levels [17]. The rise in progesterone helps smooth muscle relaxation and maintains the health of pregnant women and fetuses. However, it also inhibits the gastric bowel movement [18]. The inhibition directly or indirectly promotes constipation symptoms. Hypothyroidism is also one of the causes of constipation during pregnancy. Studies suggested that thyroid function examination is required if constipation symptoms cannot be relieved after routine treatment during pregnancy [19].

In addition to these reasons, water intake, diet, exercise, drug intake during pregnancy can also

increase the likelihood of constipation. During pregnancy, the metabolism speeds up and pregnant women need enough water. Some pregnant women, who have severe early pregnancy reactions, such as nausea and vomiting, need more water via supplement. Studies showed that low fluid intake was associated with constipation during pregnancy, especially in late pregnancy [19]. For nutrition collocation, the studies have showed inconsistent results. Anderson AS reported that inappropriate diets did not appear to be the primary cause of constipation during pregnancy. However, Derbyshire E demonstrated that dietary factors may play a role in terms of preventing, or alleviating, bowel habit perturbations both throughout and after pregnancy [19, 20]. If the diet is fine, it will lead to reduced peristalsis. Not eating on time or not eating breakfast will affect gut reaction to regular stimulation and be more difficult to defecate. Some pregnant women also refuse to exercise due to factors such as body posture, or threatened abortion and other pregnancy complications. Decreased exercises also increase the incidence of constipation during pregnancy. During pregnancy, women sometimes take some drugs, such as iron and magnesium sulfate [21, 22]. Studies showed that iron salt supplementation can increase the symptoms of constipation during pregnancy [9].

Psychological factors: High anxiety is one factor of constipation [16]. Pregnant women have high pressure due to the shift in social roles. Reduced sleep during pregnancy also affects pregnant women's moods. Sleep deprivation is associated with psychological disorders such as anxiety, depression, and fatigue [23]. From 12% to 21.1% of pregnant women have depressive symptoms during pregnancy [24-26]. Also, 54%-59.5% of pregnant women have prenatal anxiety [27, 28]. Anxiety and other mental factors affect the hypothalamus and autonomic nervous system, especially the parasympathetic nervous system, which weakens the intestinal tract tension, reduces the secretion of digestive juices in the gastrointestinal tract, slows down the transmission of feces and dries out feces.

Health management of constipation during pregnancy

Preventive measures: The most effective way to prevent constipation during pregnancy is a

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lifestyle of health management. Due to increased metabolism during pregnancy, pregnant women drink more than the usual amount of water. Although there is no study to show that increasing fluid intake can reduce constipation during pregnancy, increasing fluid intake is also recommended as one of the first measures of pregnancy due to other health benefits. A glass of water in the morning stimulates peristalsis and promotes defecation; drinking of carbonic acid beverage is not recommended. Chinese nutrition society recommends an appropriate increase in dietary fiber. Dietary fiber can reduce constipation through stimulating the secretion of digestive juices, promoting intestinal peristalsis, and shortening the time of food in the digestive tract. During pregnancy, the collocation of coarse and fine grain should be focused upon. Fruits and vegetables that are rich in dietary fiber should also be added. Morning or after dinner is the best time to defecate. Reading books and newspapers should be avoided. Defecate immediately if you feel like doing so. The defecation reflex will weaken or even disappear after repeated suppression.

If there is no contraindication of exercise during pregnancy, pregnant women are advised to do some exercises. Proper exercise is not only conducive to the healthy development of the fetus but also conducive to pregnant women to speed up the intestinal peristalsis and strengthen the pelvic floor muscles. Suitable exercises during pregnancy include swimming, walking, jogging, gymnastics, yoga, climbing stairs, and Kegel exercises.

Bifidobacterium probiotics can not only help the digestion and absorption of food but also can adjust the intestinal peristalsis. One study showed that pregnant women who regularly used probiotics had an increased frequency of defecation, reduced abdominal tension and pain, and reduced bowel obstruction, suggesting that regular use of probiotics could help prevent constipation [29]. For supplementation of probiotics, direct probiotics or indirect probiotics, such as yogurt are both recommended.

In addition, enough sleep and keeping up a good mood have beneficial effects on the relief of constipation. Compared with intermittent administration, daily regular complement of iron effectively reduce anemia and reduce the occurrence of constipation [30].

Clinical strategies: For serious cases, clinical treatment is needed to control symptoms [31]. Meanwhile, the adverse effects on the fetus should be seriously evaluated [32]. For mild constipation, lifestyle change is often recommended. Most of the pregnancy constipation can be significantly improved through lifestyle adjustment. For patients with their first constipation during pregnancy, accurate evaluation is usually not necessary [33]. When the condition is serious and conventional treatment fails, further examination and diagnosis are required [32].

Studies showed that drugs such as volumetric laxatives and permeable laxatives can relieve constipation. Osmotic laxatives are hardly absorbed by the body and it has no associated with the risk of fetal birth defects [31]. Stimulant laxatives are also not absorbed and more effectively reduce constipation during pregnancy than osmotic laxatives [34]. However, the side effects including abdominal pain and diarrhea limit its use [35]. Glucomannan is also recommended as a healthy medicinal plant for treating pregnancy constipation [36].

If fecal impaction happens, glycerine enema is recommended. Finger auxiliary to defecate is helpful. If combined with an anal fissure, liquid paraffin can be injected. However, enemas will cause changes in abdominal pressure and affect the life safety of the fetus in the abdomen. So, the enema for pregnant women is not recommended unless special circumstances [37].

Some Chinese medicines were also explored to treat constipation during pregnancy. Studies showed that daikenchuto (TJ-100) was effective and safe for pregnant women with constipation [38]. For the treatment of constipation during pregnancy, rhubarb should be avoided, which contains anthraquinones constituents and has the risks of birth defects and abortion. Oral lubricity laxatives, such as castor oil liquid salad is also not suitable, which affects the intestinal absorption of fat-soluble vitamins, and the occurrence of neonatal diseases associated with vitamin deficiencies such as low prothrombin hemorrhage [35].

At the same time of treatment, more attention should be paid to the psychological counseling of patients with constipation.

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Summary

Pregnancy has a higher risk of constipation. Psychological factors, female physiological structure, and hormone changes are closely related to constipation during pregnancy. Developing good habits, including adequate moisture, dietary fiber, the habit of defecation, maintaining a certain amount of exercise, getting enough sleep, being in a happy mood, the right amount added probiotics are effective ways to prevent it. For serious cases, clinical treatment is needed to improve the quality of life and control symptoms under the guidance of doctor instructions.

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Disclosure of conflict of interest

None.

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