



## Gut-Uterus Connection; The Path for Prevention of Pregnancy Complications

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From the viewpoint of Persian Medicine, digestion has four steps. The initial digestion takes place in the stomach, which forms chymous; the second step of digestion takes place in the liver, which forms temperament, and the third and fourth steps of digestion take place in the vessels and tissues, respectively. All quaternary digestion steps have two products: one as tissues' supply, and the other waste, required to be disposed. [1] The menstrual blood is one of the waste of third and fourth digestion that must be disposed monthly through the uterus [2]. So, in Persian medicine, menstrual bleeding with a proper quality and quantity have been introduced to guarantee health in women of childbearing age. [3] During pregnancy, the disposing route of uterus is blocked and accumulation of waste materials that must be disposed through the uterus can cause com-

plications during pregnancy [4]. The experts of Persian medicine believed that to eliminate these waste materials and reduce the complications of pregnancy, an alternative route adjacent to the uterus should be activated, which is the large intestine, as the closest waste-disposing organ adjacent to the uterus. This is why they emphasized on normal bowel movements during pregnancy and use of laxatives during pregnancy as the first line prevention and treatment of complications during pregnancy [5]. This issue is not limited to pregnancy, because from the perspective of Persian medicine, the uterus and intestine are collaborating and their diseases must be considered in relation to each other. Interestingly, Persian medicine's authors have emphasized that normal defecation 1-2 times a day is the alternative of repeated Phlebotomy in the patients, which suggests that

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body can use each of feces and/or menstrual blood, although apparently different in nature, for the disposal of same waste materials [6].

About the connection between the digestive system and the uterus, several evidences can be found in different studies, some of them mentioned in the following. With the onset of menstruation, many women report changes in bowel habits [7, 8] and gastrointestinal complications, including constipation, which is one of the most common complaints among women of childbearing age [7]. Many women experience several symptoms in the days before and during menstrual period, including gastrointestinal symptoms such as abdominal pain, constipation, diarrhea, nausea and vomiting, bloating and lower abdominal pain [8].

Evidence suggests that gynecologic conditions, such as menstrual abnormalities, vaginal discharge, infertility and gynecological surgery in women with inflammatory bowel disease are more than the general population and it is noteworthy that the incidence of symptomatic vaginal discharge in women with inflammatory bowel disease increases after proctocolectomy [9].

The most common side effects during pregnancy include gastrointestinal problems and constipation, which is the second most prevalent gastrointestinal disease after nausea/vomiting during pregnancy [10], so that more than 40 percent of women experience constipation during pregnancy, while they sometimes had no experience of this problem before pregnancy [11]. Interestingly, some studies report association of constipation and delusion in preg-

nancy and the effect of constipation treatment on this disease without the use of antipsychotic drugs [12]; moreover, Dr. Ahmadiéh reported a case of preeclampsia treatment with focus on relieving constipation in the patient [13].

For the connection between the uterus and the digestive tract, various physiologically active compounds can be mentioned: first is prostaglandins, because the amount of prostaglandin in the blood affects bowel habits and it has been shown that these molecules are involved in the evolution of gastrointestinal movements, including tonic and phasic myogenic contractions, to the extent that the increase in prostaglandins is associated with diarrhea [7, 14]. Second is neurotransmitters, such as serotonin, which affect the function of these two organs and third is hormones, such as steroid hormones that affect the performance of these two organs [8]. Several studies have addressed the reducing effects of steroid hormones like progesterone and serotonin on the intestinal transit time and it has occasionally been mentioned as one of the causes of chronic constipation in females [15].

However, the common innervation of the rectum and uterus and the neural connections between the two organs through the vagus nerve should not be underestimated, as well [16].

From the viewpoint of Persian medicine, many diseases are due to accumulation of waste materials in the body and one of the main components of health care is disposal of waste from the body. It should be explained that from the perspective of Persian medicine, nausea/vomiting, dyspnea, headache, tendency to some

foods and beverages, and the tendency to some unpleasant foods, such as soil that occur in pregnancy is due to accumulation of waste materials in the body [17]. Stop of the monthly blood outflow from the woman's uterus, and the fetus that produce waste in exchange for using best food reserves of the mother's body cause waste accumulation in pregnant women [18].

Consequently, during pregnancy, due to the blockage of the uterine waste disposal route and increased waste production, different organs will be affected and various diseases will be developed. Therefore, it is essential to find an alternative route to dispose these waste materials. It seems that more attention to the gut-uterus connection or axis during pregnancy, is the key to a successful pregnancy. From the perspective of Persian medicine, the daily normal defecation during pregnancy and using laxative foods and medicines as the most important plan in prevention and treatment of pregnancy complications is the best way for achieving a healthy pregnancy.

## Conflict of Interest

None.

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