

The effect of glucomannan on pregnancy constipation

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ABSTRACT

Introduction: Constipation is a common complication among pregnant women; it refers to hard and infrequent bowel movements where the stools defected from body becomes hard and dry, as well. various medical interventions are nowadays implemented to treat constipation, Some of which are either banned or not willingly implemented by pregnant women; thus, doctors try to avoid such methods. Glucomannan, a combination of a few simple sugars, is an effective substance for treating constipation. According to the results of studies conducted in this area, glucomannan has been greatly welcomed and approved by pregnant women. Thus, the present study was conducted to investigate the effect of glucomannan on pregnancy constipation and to compare it with other common treatment methods. **Materials and Methods:** This study is a clinical trial in which 64 pregnant women with constipation were investigated in the two groups of intervention and control (32 participants in each group). All participants were in their third trimester of pregnancy. The intervention group was treated with glucomannan, while the control group was treated with magnesium hydroxide. After 1 month, the participants were investigated and the questionnaires were responded to. The collected data were analyzed using the SPSS software and Chi-square tests. **Results:** The post-treatment frequency of bowel repulses increased in both the groups. However, the increase was different in the two groups. About 75% of the participants in the glucomannan group reported having at least 6 times of bowel movements. Moreover, 25% of the participants in the glucomannan group reported having >6 times of bowel movements. Using a Chi-square test, it was found that there is a significant difference between pre- and post-treatment frequency of bowel movements per week ($P = 0.002$). Moreover, there was a significant difference between the post-intervention frequency of bowel movements in the two groups ($P = 0.001$). **Discussion:** In the present study, it was attempted to investigate the effect of glucomannan on pregnancy constipation. The findings indicated that glucomannan is likely to improve constipation symptoms in pregnancy and reduce pregnant women's complaints to a significant level through increasing the frequency of bowel movements and affecting the stool consistency. **Conclusion:** Along with other treatment methods, glucomannan is recommended as a healthy medicinal plant for treating pregnancy constipation.

Keywords: Constipation, constipation treatment, glucomannan, pregnancy

Introduction

Constipation refers to bowel movements that are infrequent or hard to pass. The stool is often hard and dry.^[1] Constipation is more prevalent in pregnancy than in other conditions.^[2]

Due to the hormonal changes and the pressure of the large uterus on the intestine, bowel movements decrease and the

pregnant woman is thus susceptible to constipation.^[3] In addition to pregnant women, constipation is also common among the elderly people, individuals with chronic diseases, and so on. In the United States, 900 individuals die from diseases associated with constipation every year.^[4] Constipation is likely to result in complications such as stool accumulation, megacolon, ulcer, general weakness, and hemorrhoid.^[5]

Most of the women whose bowel movements are completely regular before pregnancy are likely to suffer from constipation during pregnancy due to the physiological changes of the uterus and increased levels of steroid hormones.^[6] In many cases, pregnancy constipation brings about hemorrhoid and

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its subsequent complications, diverticulosis exacerbation, and diverticulitis. Thus, it is necessary to take proper measures to treat constipation.^[7]

To treat constipation in pregnant women, it is recommended to use fibrous materials and more vegetables, and, when necessary, drugs such as magnesium hydroxide is prescribed.^[8,9] This method does not work for most women. Moreover, given their pregnancy and the fear of medicinal complications, pregnant women are not willing to try such methods.^[10]

Glucomannan is one of the medicinal plants widely used for the treatment of several diseases. It is a combination of a few simple sugars that is likely to create adequate bowel movements through increasing bowel movements and preventing the retention of feces in the rectum and its dryness.^[11] Given the results of the studies conducted on the effect of glucomannan on constipation in similar cases (chronic diseases, elderly people, and so on), it seems that this medicinal plant can reduce the constipation problem of pregnant women or completely alleviate it.^[12,13] The present study was conducted to investigate the effect of glucomannan on pregnancy constipation and to compare it with the common treatment method (magnesium hydroxide).

Materials and Methods

The present study is a clinical trial. Based on the studies conducted in this area, the sample size of this study was 64 participants. This study was conducted on pregnant women suffering from constipation. They had referred to the research assistant's private office. The pregnant women were alternately treated with glucomannan and magnesium hydroxide. The samples were almost homogeneous in terms of age, number of pregnancies, and gestational age. Finally, 32 participants were treated with glucomannan and 32 were treated using magnesium hydroxide. To maintain ethical considerations, the project was approved and confirmed by the Ethics Committee of the Lorestan University of Medical Sciences. The data were collected through conducting interviews, and the data collection tools were questionnaires on demographic characteristics, reproductive characteristics, and information about the patient's complaints (constipation).

The inclusion criterion was not having a history of the following: sensitivity to magnesium hydroxide and glucomannan, kidney diseases, multi-fetal pregnancy, and high-risk pregnancy. The samples were free to drop out of the study at any time during the project. The women in the intervention group received 4 g of powdered glucomannan in two divided doses of morning and night with a glass of water. The samples were trained to record and make notes of the changes in their bowel movements. They were also asked to refer to the research assistant's office after 1 month. After 1 month of using glucomannan, the questionnaires were responded to. As for the magnesium hydroxide group, the participants were asked to take a tablespoon of the drug each night. Moreover, they were asked to refer to the gynecologist (research assistant) after 1 month of taking the

drug. The changes made in the status of bowel movements were recorded based on the responses to the questionnaires.

Finally, the collected data were analyzed using the SPSS and Chi-square tests. The groups were compared with both their own pre-treatment status and with one another.

Results

The findings of the present study indicated that the samples were homogeneous in terms of demographic characteristics and reproductive features and that no significant difference was observed between the two groups. Before the treatment, 91.66% of the samples had <6 times of excretion per week, and only 8.34% of the samples had at least one excretion per day (>6 times a week). The frequency of bowel movements increased after the treatment in both the groups. However, the increase was different in the two groups. About 75% of the samples in the glucomannan group reported having at least 6 times of bowel movements per week. Moreover, 25% of the samples in the glucomannan group reported having >6 times of bowel movements. With Chi-square test indicated that there is a significant difference between the pre- and post-treatment frequencies of stool excretion in the two groups ($P = 0.05$) [Table 1].

Furthermore, stool consistency changed after the treatment. The findings of the present study indicated that in 48.7% of cases, the samples complained about hard and dry stool before the treatment. However, after the treatment, only 4.1% of the samples in the glucomannan group complained about hard and dry stool. In 95.9% of the samples, the stool consistency was softer ($P < 0.05$) [Table 2].

Moreover, there was a significant difference between the two groups in terms of post-treatment frequency of bowel movements ($P < 0.005$). In the magnesium hydroxide group, after conducting the treatment, the stool consistency was soft in 83.4% of the cases, and only 16.6% of the samples

Table 1: The comparison of pre- and post-treatment frequencies of bowel movements in the two groups

Group	Number of bowel movements (<6 times a week)		P
	Before the treatment (%)	After the treatment (%)	
Treatment with glucomannan	91.98	25	0.002
Control	91.34	36	0.032

Table 2: The comparison of pre- and post-treatment stool consistencies in the two groups

Group	Stool consistency (hard and dry)		P
	Before the treatment (%)	After the treatment (%)	
Treatment with glucomannan	49	4.1	0.028
Control	48.4	16.6	0.042

Table 3: The comparison of post-treatment constipation symptoms in the two groups

Constipation symptoms	Group		P
	Glucomannan (%)	Control (nesium hydroxide) (%)	
Less than 6 times of bowel movements per week	25	36	0.001
Hard and dry stool consistency	4.1	16.6	0.002

complained about hard and dry stool. The results of a Chi-square test showed that there was a significant difference between the two groups in terms of pre- and post-treatment stool consistency ($P = 0.002$). Moreover, the two groups were significantly different in terms of post-intervention stool consistency ($P < 0.05$) [Table 3].

Discussion

In the present study, it was attempted to investigate the effect of glucomannan on pregnancy constipation. The findings indicated that glucomannan is likely to improve constipation symptoms in pregnancy and reduce pregnant women's complaints to a significant level through increasing the frequency of bowel movements and affecting stool consistency. A study conducted by Signorelli (1996) supports the findings of the present study. According to Signorelli, using glucomannan together with lactulose during pregnancy not only lacks any complications for both the mother and the fetus but also reduces the patient's complaints and improves his/her status.^[2]

Moreover, the findings of another study in this area by Chen *et al.* (2006) indicated that daily use of glucomannan has a significant effect on treating constipation. Furthermore, in comparison to magnesium hydroxide, the effect of glucomannan was more significant.^[14]

In the present study, glucomannan was compared with magnesium hydroxide, which is the common treatment method for improving pregnancy constipation. The findings indicated that glucomannan is more effective than magnesium hydroxide, and the statistical tests indicated a significant difference. According to the study conducted by Magan *et al.* (2012), glucomannan is more effective than other treatment methods of pregnancy constipation. Moreover, glucomannan is greatly welcomed and approved by patients. According to the findings of their study, in 80% of the investigated patients, the post-intervention bowel movements status returned to the pre-pregnancy status after using glucomannan, and the patients' complaints reduced to a significant level.^[3]

Staiano *et al.* (2000) conducted a study on the effect of glucomannan on the patients' constipation. The findings of their study indicated that using glucomannan is highly effective in the treatment of constipation. Moreover, no complications were reported for using glucomannan. The findings of their study are consistent with those of the present study.^[15]

In this present study, no complications were observed. In terms of complications, the findings of the present study are

also consistent with those of the study conducted by Han *et al.* (2016). The participants were highly willing to continue their participation in the present study. One of the limitations of the present study was failing to follow up on the participants after the delivery and to control the fetal and neonatal complications. However, based on the findings of the studies conducted in this area, using glucomannan has no complications for the infant.^[16]

Conclusion

In general, the findings of the present study indicated that using glucomannan is highly effective for treating pregnancy constipation, and no serious complication was reported. Moreover, glucomannan is easy to use, and since it is a medicinal plant, it was easily welcomed and approved by the patients. While pregnant women are afraid of taking many medicines and avoid taking them even with the doctor's prescription, they frequently referred health centers to receive glucomannan for later usage even after the study was finished. Thus, along with other treatment methods, it is recommended to use this healthy medicinal plant for treating pregnancy constipation.

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Conflicts of interest

There are no conflicts of interest.

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