

The Effect of Aloevera for Constipation in Schizophrenia Patients

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Abstract

Objectives: The objective of this study was to evaluate the effect of aloeon constipation in schizophrenia patients. Reduction of constipation symptoms enhances the quality of life of the patient. **Methods/Statistical Analysis:** Subjects included in the study were 50 schizophrenia patients. The subjects took aloevera for 4weeks. Variables were measured at baseline and again at 2 weeks and 4 weeks. Structured questionnaires were used, and data were analyzed using the IBM Stastastical Package for the Social sciences (SPSS 21.0). **Findings:** There was a significant difference in the degree of difficulty in defecation and bowel function over time for patients using aloevera. In the experimental group, defecation frequency and feeling of incomplete evacuation changed significantly, while time spent defecating, degree of difficulty in defecating and overall bowel function did not significantly change over 4 weeks. In the control group, there was no significant difference. **Improvements/Applications:** Aloe had significant effects on constipation in patients with schizophrenia. However, morenon-pharmacologic intervention studies are needed.

Keywords: Aloevera, Bowel Function, Constipation, Defecation, Schizophrenia

1. Introduction

Schizophrenia is a severe mental disorder that requires long-term treatment, including the administration of antipsychotic agents. Antipsychotics used for schizophrenia are most often dopamine D2 receptor antagonists¹. These drugs affect dopaminergic neurotransmission by inhibiting subcortical areas, and can generate extrapyramidal side-effects (EPS)². Anticholinergic medications are used to control and prevent these EPS symptoms³. However, these anticholinergics can also cause peripheral adverse effects such as constipation, and dry mouth, and central side-effects such as ataxia, tremor, and rigidity^{4,6}.

Constipation is a common symptom for patients with schizophrenia taking antipsychotics. If left untreated it can cause paralytic ileus, fecal impaction, and bowel obstruction⁷⁻⁹.

Constipation is defined as change in stool weight, and consistency that affect the time taken to pass the stool

through the bowel, and cause difficulty of fecal expulsion, abdominal pain, and distension, anorexia, nausea and other symptoms of discomfort¹⁰. Causes of constipation include lack of fluid intake, inactivity, low fiber intake, and long-term consumption of laxatives^{10,11}.

Currently, 20% of patients taking antipsychotics may have constipation. Most of these patients are prescribed laxatives for symptom relief¹². One study noted that 18.7% of these patients have had long-term prescriptions for laxatives being. Between 2000 and 2007, long-term laxative use among young schizophrenics increased from 7% to 15.3%¹³. As such, despite being a very well-known symptom, there is not much research about constipation as a side effect of antipsychotics.

Schizophrenic patients exacerbate constipation due to low fiber diets and a sedentary lifestyle, in addition to antipsychotic use^{14,15}.

Because schizophrenic patients must take long-term antipsychotics, administering additional medication for

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constipation must also be continuous, which can be a challenge. Therefore, secondary therapies such as dietary fiber intake increases may be considered to alleviate constipation^{16,17}.

Of several adjunctive therapies used to alleviate constipation, aloevera has been widely used as early as 2000 years ago to help maintain health¹⁸.

Among the 12 preparation of aloe, anthraquinone, anthraquinone glycoside aloins A and B alleviate constipation¹⁹. They increase the water content in the bowel, promote the secretion of digestive juices and stimulate hyperfunctioning of intestinal peristalsis²⁰.

Existing studies have reported an alleviating effect of aloevera on constipation^{21,22}.

However, there are not many research studies applied to non-pharmacologic therapies for the relief of constipation schizophrenia.

This study attempted to utilize non-pharmacologic therapy to help alleviate constipation in patients with schizophrenia.

2. Research Objectives

The ultimate goal of this study was to reduce constipation in schizophrenia patients to improve their quality of life. A more specific objective was to evaluate the effect of aloevera on constipation in patients with schizophrenia.

3. Methodology

3.1 Study Design

This study was designed to determine the effect of aloevera use on constipation in schizophrenic patients. The control group was not given aloevera, while the experimental group was given aloevera X times daily for four weeks, after which several variables were examined.

3.2 Study Subjects

The study participants were 50 schizophrenia patients who complained of bowel disorders while admitted to mental care facilities in Daejeon city.

The G * Power 3.1 data analysis tool was used to calculate the appropriate number of subjects. The size effect was 0.70, significance level was 0.05 and the statistical power was calculated as 0.70 based on the t-test. As a result, the number of subjects was calculated to be 20, which was exceeded in his study.

The initial number of participants was 55. However, data for 50 patients (90.9%) were used in the final analysis due to participant dropout, insincere responses and missing information.

3.3 Study Variables

- Bowel Function Assessment Scale

The bowel function assessment tool used was developed by²³. This tool a 3-point Likert scale of 12 items, with a score range of 13-36 points. A higher score indicates poor bowel function. Cronbach's alpha was 0.78 in development time, and 0.76 in this study.

- Constipation Assessment Tool

Constipation was assessed using a Constipation Assessment Scale (CAS) developed by²⁴. This tool uses a 3-point Likert scale for a total of 8 items, with a score range of 0-16. A higher score means severe constipation. Development time, Cronbach's alpha was .70 in this study was 0.76.

- Bowel movement related factors

Constipation related factors included: Defecation frequency / 7 days, time spent defecation, degree of difficulty in defecation and feeling of incomplete evacuation. A higher score for the feeling of incomplete evacuation indicated that the patient felt more of a sensation of incomplete evacuation.

3.4 Method of Data Analysis

Data was analyzed using the IBM SPSS 21.0 program. The significance level was set at 0.05.

- Differences between the two groups with regard to general characteristics and constipation related characteristics were analyzed by t-test.
- Differences between timeframes and groups were analyzed using ANOVA.
- The t-test was used for data analysis of the differences in variables at baseline after two weeks and after four weeks.

4. Findings

4.1 The General Characteristics of the Subjects and Homogeneity Test

The mean age of subjects in the experimental group was 53.8 years, and 57.4 years in the control group. In the experimental group, there were 20 women (80%), and in

Table 1. Comparison of general characteristics between two groups

Characteristics	Categories	Experimental group (n =25) n(%)	Control group (n =25) n(%)	χ^2/ t	p
Age(year)	50≥	6(24.0)	3(12.0)	-1.65	.111
	51-60	14(56.0)	10(40.0)		
	61≤	5(20.0)	12(48.0)		
Sex	Male	5(20.0)	7(28.0)	.65	.518
	Female	20(80.0)	18(72.0)		
Education (year)	6≥	9(36.0)	11(44.0)	.96	.340
	7-9	5(20.0)	7(28.0)		
	10≤	11(44.0)	7(28.0)		
Marital Status	Married	3(12.0)	4(16.0)	-.63	.526
	Single	16(64.0)	11(44.0)		
	Others	6(24.0)	10(40.0)		
Religion	Buddhist	2(8.0)	2(8.0)	1.08	.283
	Protestant	18(72.0)	21(84.0)		
	Others	5(20.0)	2(8.0)		
Excercise(min)	None	8(32.0)	8(32.0)	.37	.709
	30>	8(32.0)	7(28.0)		
	30-60	2(8.0)	7(28.0)		
	60<	7(28.0)	3(12.0)		

the control group, there were 18 women (72%). Education level is more than 10 years in the experimental group followed by 11 people (44%), 7 people (28.0%) in the control group. There were 16 unmarried subjects (64%) in the experimental group, and 11 (44%) unmarried patients in the control group. The Christian religion was common, with 18 people (72%) identifying as Christian in the experimental group, and 21 patients (84%) identifying as such in the control group. In the experimental group, day exercise time was reported as: 32% (n=8) did not exercise, and 28% (n=7) exercised for more than 60 minutes. In the control group were 8 people (32%) who did not exercise, while 3 people (12%) reported more than 60 minutes of exercise.

As shown in Table 1, the general characteristics of the two groups were comparable.

4.2 Constipation Characteristics of the Subjects and Homogeneity Test

The frequency of defecation per 7 days was 3.4 times and 3.1 times in the experimental group and control group, respectively. The average time per defecation was 15 min-

utes in the experimental group, and 12.9 minutes in the control group. Degree of difficulty in defecation was 2.5 in the experimental group and 1.8 in the control group. Feeling of incomplete evacuation in the experimental group was 2.8 and 2.6 in the control group. CAS scores used to assess the degree of constipation were 5.4 in the experimental group and 4.2 in the control group. Bowel function was 22.9 in the experimental group and 21.5 in the control group.

As shown in Table 2, none of the constipation characteristics of the two groups were statistically significant, but were homogeneous.

4.3 Differences in Constipation-Related Characteristics Over Time

As shown in Table 3, there was no significant difference in the defecation frequency over 7 days, feeling of incomplete evacuation and average time of defecation over the study timeframe. This was consistent within each group's timeframe. There was no significant when comparing groups or treatment periods.

Degree of difficulty in defecation was no significant change according to the change in time between the two groups ($F = 0.16$, $p = .689$), the differences were significant according to the change in time of the group ($F = 4.49$, $p = .039$).

Table 2. Comparison of factors bowel function between Two groups

Charact -eristics	Experimental group (n = 25) mean(SD)	Control group (n = 25) mean(SD)	x ² / t	p
Defecation frequency/ 7days	3.4(2.65)	3.1(1.98)	.54	.590
Defecation takes time (min)	15.0(10.23)	12.9(11.14)	.71	.479
Degree of difficulty in defecation	2.5(1.00)	1.8(.80)	.12	.902
Feeling that there is still stool	2.8(.47)	2.6(.70)	1.18	.242
CAS	5.4(3.19)	4.2(1.98)	1.65	.105
Bowel function	22.9(3.48)	21.5(4.95)	1.15	.253

Table 3. Characteristic difference in constipation according to the change in time

Variables	Measuring point		Experimental group (n = 25) mean (SD)	Control group (n = 25) mean (SD)	Source	F	p
Defecation frequency/7days	Before After	2weeks 4weeks	3.4(2.65)	3.1(1.98)	Group Time G*T	.54	.580
			4.4(4.08)	2.8(1.78)		1.32	.270
			3.8(2.98)	2.8(1.78)		2.32	.132
Defecation takes time(min)	Before After	2weeks 4weeks	15.0(10.23)	12.9(11.14)	Group Time G*T	2.47	.095
			14.0(11.37)	11.6(12.30)		1.29	.293
			11.6(9.08)	11.6(12.30)		.26	.612
Degree of difficulty in defecation	Before After	2weeks 4weeks	2.5(1.00)	1.8(.80)	Group Time G*T	.16	.689
			2.2(1.19)	1.7(.92)		4.49	.039
			2.0(.93)	1.7(.92)		.89	.349
Feeling that there is still stool	Before After	2weeks 4weeks	2.8(.47)	2.6(.70)	Group Time G*T	.18	.67
			2.4(.71)	2.5(.71)		.40	.50
			2.5(.82)	2.6(.64)		.78	.38
CAS	Before After	2weeks 4weeks	5.4(3.19)	4.2(1.98)	Group Time G*T	9.27	.004
			6.0(2.73)	4.1(3.10)		1.11	.296
			6.5(2.80)	4.0(2.24)		2.43	.125
Bowel function	Before After	2weeks 4weeks	22.9(3.48)	21.5(4.95)	Group Time G*T	1.99	.129
			23.1(3.57)	22.7(4.62)		10.10	.001
			25.6(3.21)	23.2(4.25)		.60	.085

The CAS score changed significantly between the two groups ($F = 9.27$, $p = .004$), without regard to time. Bowel function was noted to be significantly different throughout the timeframe of the study ($F = 10.10$, $p = .001$).

5. Discussion and Conclusion

This study was an attempt to determine the effect of aloevera on constipation in patients with schizophrenia. The results of this study indicate that, after taking aloevera, there was a statistically significant change in the (degree of difficulty in defecation and bowel function) over time. CAS scores also showed a significant difference between the two groups. A study by²² showed that after 28 days of taking aloe, bowel movements are hyperactive, stool becomes dilute, and there are improved constipation symptoms. In another study, by Lee and Warden, aloevera had effective constipation relief.

Aloevera is commonly used to relieve constipation. Its effect is due to the aloevera anthraquinone glycoside component²⁵. Aloe-emodin-9-anthrone of anthraquinone glycosides prevent the absorption of water by the colon and dilute the stool by increasing mucus secretion to relieve constipation^{26,27}. When taking aloe 0.25g, an effect is seen after 6-12 hours¹⁰.

Studies analyzing the use of aloe to relieve constipation in schizophrenia patients are rare but other non-pharmacologic therapies have been studied [28,29](#).

Constipation does not only occur in schizophrenia patients taking antipsychotics. There are other reasons such as lack of physical activity and low fiber intake.

Non-pharmacologic therapy combined with pharmacological therapy should also be applied when planning interventions. Aloevera was effective in the relief of constipation of schizophrenia patients.

Other non-pharmacologic intervention studies to relieve constipation for patients with schizophrenia also should be done.

6. References

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