

Research Article

THE EFFECTS OF *PLANTAGO OVATTA* SEED'S HUSK, *CASIA FISTULA* AND *CHEBULIC MYROBALANA*, ON BOWEL HABIT.

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ABSTRACT

Frequency of defecation, faecal form, straining at stool, feeling of incomplete evacuation, feeling of urge to defecate, and Gastrointestinal symptoms were recorded in 51 healthy persons in three phase study of seven days each. A combination of *Plantago ovatta* seed's husk, *Casia fistula* and *Chebolic myrobalana* # (P.C.C. Powder) as fiber supplement and Bowel regulator was given. There was significant improvement in stool consistency, straining at stool, feel of urge to defecate. A significant residual effect has also been proved. There are indications that isapgol with anthroquinone are of benefit in relieving constipation symptoms and as Bowel regulators.

Key words: - Faecal form; incomplete evacuation; isapgol husk; feeling of urge to Defecate; straining at stool; anthroquinone; constipation.

INTRODUCTION

Symptoms of constipation like reduced frequency of stools, no urge to pass, hard and pellety stools, straining at start and end of defecation, and feeling of incomplete evacuation are commonly seen in otherwise healthy individuals. Daily dietary fiber intake varies from 10 to 15 gms. with an average of 13.8 gms. (1) Dietary reference value for non-starch polysaccharides in 18 gms. 24 gms. (2) Lack of dietary fiber seems a important cause for constipation in otherwise normal individuals. Isapgol husk has been used as fiber supplement has proven track record. (3) Most of studies on constipation and laxatives focused on consistency and other aspects, but very few studies influence of drugs on feeling of urge to defecate. (4) The *Plantago ovatta* seed's husk (Isapgol) and *Casia fistula* (Amaltas) along with *Chebolic myrobalana* (Harad) # (P.C.C. Powder) have been selected as fiber supplement. It contains mild stimulant laxatives.

Subjects: -

Fifty-five non- patient volunteers were recruited for the study irrespective of presence of constipation Symptoms. All were questioned for any known drug allergy and a written consent was taken for their participation in this study. All females were not pregnant and no individual were under any treatment and no one has undergone any surgical treatment of any kind. Three volunteers were excluded from the study as they had malarial fever during course of study. Of the 51 remaining, 39 (65%) were males and 12 (35%) were females between 15 to 70 years. The volunteers were maintained as per the norms of Central Ethics Committee on Human Research (CECHR) and local ethics committee.

METHODS: -

The study was divided into three distinct seven-day phases; pretreatment, treatment and post treatment. Throughout each phase subjects completed a daily diary of bowel habit. A daily record of every stool was kept considering following parameters.

- 1) Frequency of defecation per 24 hours.
- 2) Faecal form according to modified version of the eight point faecal form scale (5)
The stools were graded according to five-point

Scale as follows;

- 1- Loose, watery
 - 2- Mushy, heaped
 - 3- Smooth, cylindrical, snake-like
 - 4- Cracked, cylindrical
 - 5- Pellety
- 3) Straining at the start of defecation
 - 4) Straining at the end of defecation
 - 5) Feeling of incomplete evacuation
 - 6) Feeling of urgency of defecation
 - 7) Feeling of urge to defecate was graded as follows;

- 1- No urge at all (score 1)
- 2- Mild urge felt occasionally not causing concern (score 2)
- 3- Moderate urge to pass, I feel good but I can ignore (score 3)
- 4- Strong urge which concerns and difficult to overcome (score 4)
- 5- Strong urge, irresistible, disturb the routine (score 5)

The bowel habit diary also included any medication taken, any kind of addiction, full dietary details and few abdominal symptoms like;

- 1- Wind
- 2- Bloating
- 3- Stomach or abdominal pain

- 4- Cramp
- 5- Peri-anal soiling
- 6- Sleep disturbances due to night-time defecation data analysis for each three-study phases was done with focus on bowel habit parameters.

Individuals were instructed to follow their normal routine and usual diet and in treatment phase subjects were supervised to take 10 gms. of #P.C.C Powder with 200 ml of drinking water at evening hours.

Students T test applied to derive the significance of values.

RESULTS: -

Stool frequency

Frequency of defecation per 24 hours for each of the study phases is given in chart –1. The mean frequency of defecation at first phase was 1.90(sd 0.73) per day, in second phase it was 1.85 (sd 0.54) per day and in third phase it was 1.84 (sd 0.56) per day.

A reduction (statistically insignificant $p < 0.25$) in stool frequency was noted in treatment phase and it was maintained during post treatment phase.

Faecal form

Faecal form and its changes are summarized in chart –2. During pretreatment phase 41% of stools passed were mushy type. Percentage of smooth cylindrical and cracked type was 26% and 23% respectively. Marked increase up to 97.3%, in cylindrical variety (optimum stool form) was noted during treatment phase. A tendency to maintain the cylindrical faecal form up to 54.1%,

Straining at the start and at the end of defecation and feeling of incomplete evacuation

Straining at start and end and feeling of incomplete evacuation is summarized in chart– 3. It is evident that 62.7% of stools were associated with straining at the end of defecation. Feeling of incomplete evacuation was remarkable in 73% of stools. A significant reduction ($p < 0.0005$) up to 3.4%, 2.49% and 5.1% was noted in all three parameters during the treatment phase. A tendency to maintain this optimum condition is seen in post treatment phase also (0.0005).

Urge to defecate

The feeling of urge to defecate and its changes are shown in chart –4. In pretreatment phase mean urge score was 1.64 (sd 0.772). Only 7.84% of individuals had the optimum score of 3. The number of optimum score 3 was raised to 74.5% during treatment phase and mean urge score increased up to 2.74 (sd 0.518). Optimum urge score was maintained high up to 19.6% in post treatment phase and mean urge score remained high up to 2.21 (sd 0.466). Rise in urge score was highly significant in treatment and post treatment phases, in comparison to pretreatment phase ($p < 0.0005$)

Gastrointestinal symptoms

The prevalence of gastrointestinal symptoms during all three phases is summarized in table-2 .It is noted that 29.6%of individuals noted symptoms of wind in pretreatment phase, which was significantly reduced to 43% in treatment phase and maintained at 6.1% even after stoppage of treatment 45% individuals.

Chart-1 Mean Frequency of stools per day.

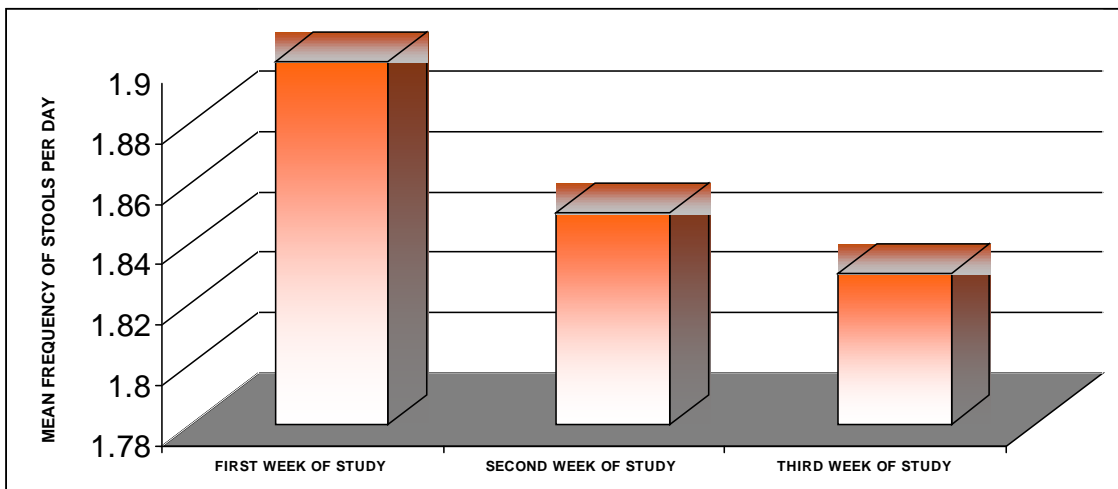


Chart-2 chart to show Mean percentage of different consistencies of stools passed before, during and after treatment with P.C.C. Powder.

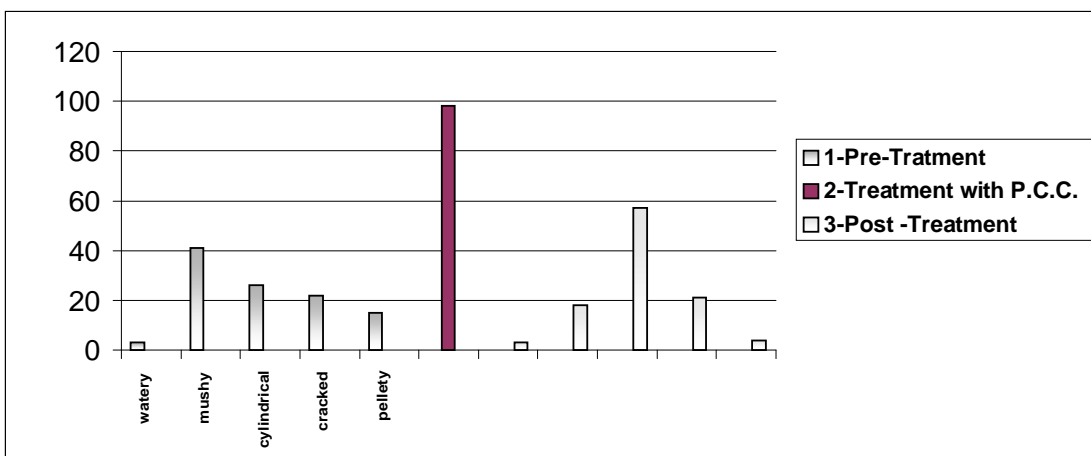


Chart-3. Straining, incomplete evacuation, during, after and Before Treatment with P.C.C.

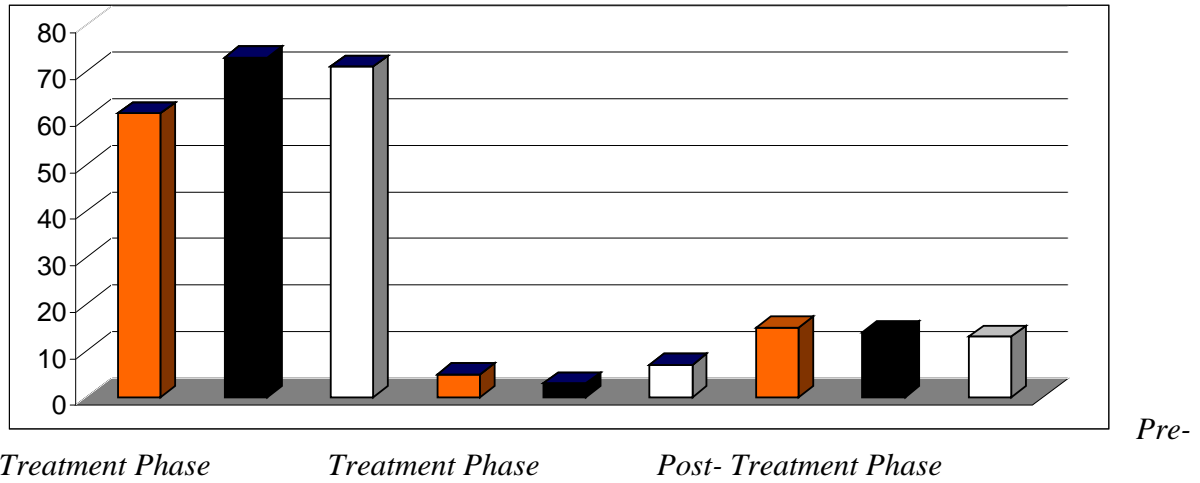


Chart –4 Mean score for feeling of urge to defecate, optimum score-3

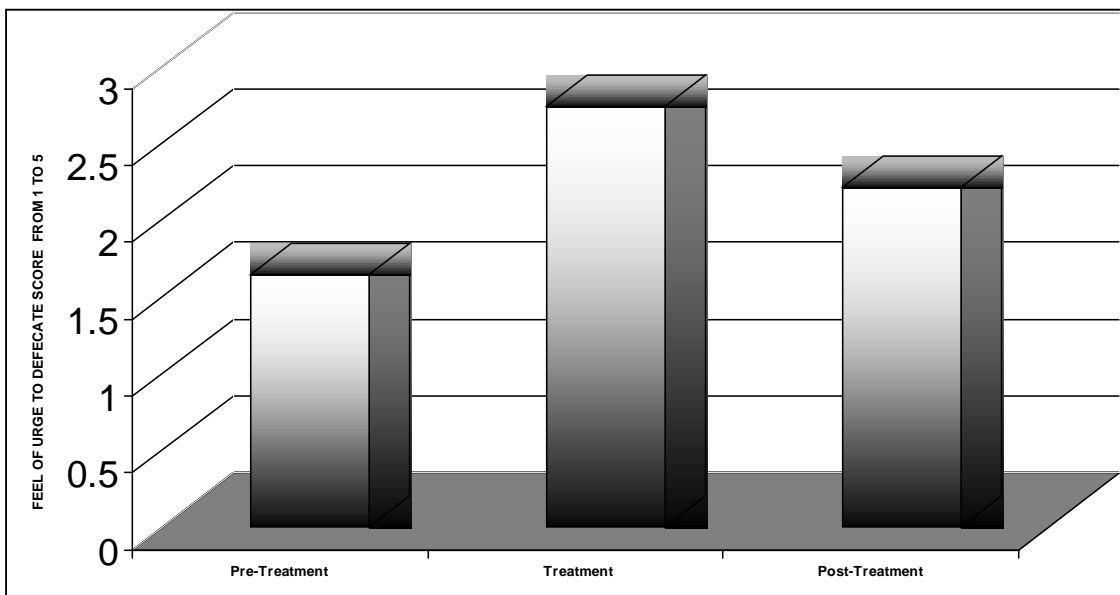


Table –1. To show percentage of subjects and feeling of urge to defecate scores phase wise

Urge score	Pretreatment	Treatment	Post-treatment
Urge score-1	49%	1.95%	1.95%
Urge score-2	41.17%	21.5%	76.4%
Urge score-3	7.84%	74.5%	19.6%
Urge score-4	0%	1.95%	1.95%
Urge score-5	1.95%	0%	0%

Table– 2. To show gastrointestinal symptoms before, during and after treatment with P.C.C. Powder.

Treatment phase	Urgency	Wind	Bloating	Pain in abdominal	Abdominal cramp	Peri-anal soiling	Sleep disturbance
Pre-treatment phase	23.8%	29.6%	45%	7.1%	9.1%	3.1%	0%
Treatment with P.C.C. Powder	1.48%	4.3%	9.88%	1.3%	0.66%	0.58%	0.0%
Post-treatment phase	3.6%	6.1%	8.0%	0.0%	2.78%	0.19%	0.0%

DISCUSSION: -

Symptoms of constipation as defined by the Rome's criteria are seen very commonly in otherwise healthy individuals (Thompson et al 1992). In Indian population passage of mushy and heaped stools, straining at stool and feeling of incomplete evacuation is highly prevalent in healthy individuals (Tendon et al, 1975, Lancet, 2). Average frequency of 2 per day is reported, which range 3 to 4 per day in Indian population (Hariharsubramaniam N. The Antiseptic; 1991 88 (5). The present study confirms the finding of high prevalence of constipation symptoms in healthy population and this was allegedly correlated with low fiber contents in modern diet (low stool weight in 24 hours as compare to persons without symptoms of constipation Tandon et al 1975 Lancet 2). Mean frequency of stool was 1.9 per day in pretreatment group and there was no significant change in treatment and post treatment group. Davies et al reported a frequency of 0.83 per day in European population and reported a significant increase in frequency up to 1.14, which would have been lower as regards Indian population. Significant improvement in number of smooth formed and snake like stools in treatment group and significant reduction of

incidences of straining and feeling of incomplete evacuation seems promising effect of P.C.C. in relieving symptoms of constipation.

One important finding of lack of adequate feeling of urge to defecate in majority of Indian population in pretreatment group and improvement in urgency score to the optimum near 3 after P.C.C. have been seen. With the use of P.C.C. Persons, who are already passing smooth and snake-like stools without any straining also, found more satisfying easy evacuation. Finding of lower incidence of gastrointestinal symptoms like wind, bloating cramp, perianal soiling, sleep disturbances in treatment and post treatment group confirms the finding that ispagol in combination of Chebulic myrobalana (Harad) and Casia fistula (Amaltas) has low side effect potential. Casia fistula has active principle hydroxy methyl anthroquinone (Bhav prnighantu Indian material medica 1600 BC commented by Pandey and chunekar p68). Chebulic myrobalanus provides anthroquinone like substances (Bhav prnighantu Indian material medica 1600BC commented by pandey and chunekar p.8). A similar herb Senna that provides anthroquinone as active principal is studied by Marlott et al American J. Gastroenterology, 1987; 82; 333, and found it beneficial for constipation.

Maintenance of lower incidence of gastrointestinal symptoms, optimum stool consistency, optimum urge to defecate and lower incidence of straining at stool and feeling of incomplete evacuation proves the value of P.C.C. as bowel regulator.

In an ideal situation dietary manipulation would be the way forward in pursuit of healthy bowel. To increase the dietary allowances an increase of up to 450 grams. Of food will be required which is inconvenient and less preferable in modern hurried life (Cumminngs 1994 in constipation, 307-314). The P.C.C. Powder a combination of ispagol with anthroquinones as palatable drink is ideal as fiber supplement and Bowel regulator to optimize the Bowel functions.

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