

Whole-leaf, freeze-dried *Aloe vera* capsules for interstitial cystitis, painful bladder syndrome, chronic pelvic pain, and nonbacterial prostatitis

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Abstract: Because of the promising anecdotal findings of interstitial cystitis (IC) patients who had tried Desert Harvest's whole-leaf, freeze-dried *Aloe vera* capsules, the Urology Wellness Center (UWC) in Rockville, Maryland, designed a double-blind, placebo-controlled clinical trial of this highly concentrated form of the *Aloe vera* plant in 13 IC/PBS patients. The study included three months of placebo followed by three months of *Aloe vera* or vice versa, depending on randomization. The study included a cross-over segment, with each patient receiving both substances at some point during the study and acting as her/his own control. The patients were assigned control numbers randomized by computer, and the products were shipped directly to the patient every month by the blinded manufacturer. The primary objective of the study was to monitor the safety and efficacy of Desert Harvest's concentrated whole-leaf, freeze-dried *Aloe vera* capsules in the management of the symptoms of IC/PBS. The symptoms that were monitored included urinary frequency, nocturia, dysuria, urgency, and suprapubic pain. Response to therapy was monitored by Quality-of-Life Assessment, IC Symptom/Problem Index, Health Status Questionnaire, and 24-Hour Voiding Diary. Of the 13 patients who were recruited for the study, 8 completed the full six months of the trial. Of the 8 patients who completed the study, 7 patients received relief from at least some of their symptoms of pelvic pain, frequency of urination, pressure, or nocturia (87.5%). Four patients experienced significant relief from all or most of their symptoms (50%). Only one patient had no response after completing all six months of the study (12.5%).

Keywords: Interstitial cystitis, painful bladder syndrome, chronic pelvic pain, nonbacterial prostatitis, *Aloe vera*, *Babardensis miller*, Desert Harvest.

Introduction

Interstitial cystitis (also known as painful bladder syndrome) (IC/PBS) is a chronic, painful, inflammatory condition of the bladder. Its cause is unknown, and unlike common cystitis, IC/PBS is believed not to be caused by bacteria and does not respond to conventional antibiotic therapy. At this time, there is no cure for IC/PBS.

IC/PBS can affect people of any age, race, or sex. It is, however, most commonly found in women. Recent epidemiological data suggest that there may be greater than 700,000 cases of

IC in the U.S. Some researchers believe that many cases of chronic pelvic pain and nonbacterial prostatitis are in reality IC/PBS, which could potentially bring the number of cases to as many as 25 million.

Some or all of the following symptoms may be present and have profoundly disruptive effects on the lives of patients.

1. **Frequency:** Day and/or night frequency of urination (up to 60 times a day in severe cases). In early or very mild cases, frequency is sometimes the only symptom.

2. *Urgency*: The sensation of having to urinate immediately, which may also be accompanied by pain, pressure, or spasms.

3. *Pain*: Can be in the lower abdominal, urethral, or vaginal area. Pain is also frequently associated with sexual intercourse. Men with IC/PBS may experience testicular, scrotal, and/or perineal pain, and painful ejaculation.

4. *Other Disorders*: Some patients also report muscle and joint pain, migraines, allergic reactions, and gastrointestinal problems, as well as the more common symptoms of IC/PBS described above. It appears that IC/PBS has an as-yet-unexplained association with certain other chronic diseases and pain syndromes such as vulvar vestibulitis, fibromyalgia, and irritable bowel syndrome. Many IC/PBS patients, however, have only bladder symptoms.

A patient who has bladder pain and urinary frequency may also suffer from sleep deprivation or depression and may have legitimate anxieties about family matters, parenting, or sexuality. However, IC/PBS is not a psychosomatic disorder, nor is it caused by stress.

Aloe vera has been used for many purposes throughout history. Native Americans recognized *Aloe vera* as the “burn plant”, “medicine plant”, and “the mystery plant”. In about 1750 BC, Sumerian clay tablets indicated the use of *Aloe vera* for medical purposes. It appears that even earlier, perhaps as early as 4000 BC, drawings of it were found on temple walls in the tombs of the Pharaohs. It is said that the Egyptians called it the “Plant of Immortality”.

Anecdotal evidence has shown that concentrated whole-leaf *Aloe vera* can significantly reduce the symptoms of IC/PBS. *Aloe vera* may also be beneficial in the treatment of other conditions such as diabetes, arthritis, high cholesterol, radiation burns, and immune system disorders.

This study considered only Desert Harvest’s concentrated whole-leaf, freeze-dried *Aloe vera* capsules. Liquid forms of *Aloe vera* could not be used for this study since there are only two ways to preserve *Aloe vera* juice—pasteurization (which would render the product ineffective) and citric acid (which causes pain in many IC patients).

Study Design

Because of the promising anecdotal findings of interstitial cystitis (IC) patients who had tried Desert Harvest’s whole-leaf, freeze-dried *Aloe vera* capsules, the Urology Wellness Center (UWC) in Rockville, Maryland, designed a double-blind, placebo-controlled clinical trial of this highly concentrated form of the *Aloe vera* plant in 13 IC/PBS patients.

The study included three months of placebo followed by three months of *Aloe vera* or vice versa, depending on randomization. The study included a cross-over segment, with each patient receiving both substances at some point during the study and act as her/his own control.

The patients were assigned control numbers randomized by computer, and the products were shipped directly to the patient every month by the blinded manufacturer.

Purpose of the Study

The primary objective of the study was to monitor the safety and efficacy of Desert Harvest’s concentrated whole-leaf, freeze-dried *Aloe vera* capsules in the management of the symptoms of IC/PBS.

The symptoms that were monitored included urinary frequency, nocturia, dysuria, urgency, and suprapubic pain. Response to therapy was monitored by Quality-of-Life Assessment, IC Symptom/Problem Index, Health Status Questionnaire, and 24-Hour Voiding Diary.

Inclusion Criteria

Patients were allowed to participate in the study if they:

1. Had a diagnosis of IC/PBS by a urologist and a history of symptoms for at least six months.
2. Were male or female over 18 years of age.
3. Made a commitment to the full six months of the study.
4. Signed a consent form.
5. Had a negative pregnancy test (if of reproductive potential).

Exclusion Criteria

Patients were excluded from the study if they:

1. Were currently using bladder instillations of DMSO or Chlorpactic.
2. Were pregnant.
3. Had diabetes (in studies, concentrated *Aloe vera* can reduce the need for insulin in diabetics, making close monitoring of blood glucose levels necessary).
4. Had previously used Desert Harvest's whole-leaf *Aloe vera* capsules. The taste is very distinctive and would have made blinding difficult if the patient had used the capsules in the past.
5. Acute urinary tract infection within the previous three months.
6. Acute genital herpes within the previous three months.
7. Active vaginitis.
8. Subjects with IC/PBS symptoms alleviated by current therapy regime.
9. A history of uterine, cervical, vaginal, or prostate cancer within the previous five years.

Protocols

The patients were required to:

1. Sign a consent form.
2. Have previous records forwarded to the Urology Wellness Center (UWC).
3. Be evaluated by the UWC nurse practitioner (B. J. Reid Czarapata, CRNP, CURN). This evaluation included surveying for musculoskeletal and vulvodynia components.
4. Follow the UWC IC diet for the duration of the study, starting one month prior to beginning the study.
5. Take three capsules twice a day with 8 ounces of liquid.
6. Complete the questionnaires and diaries before, during, and after the study.

Method

For three months, the six capsules per day contained 3,600 mg of pure, whole-leaf, freeze-dried *Aloe vera* concentrate with a minimum of 1200 mg of polysaccharide per daily serving.

For the other three months, each capsule contained 550 mg of a placebo (Avicil microcrystalline cellulose) per hard-shell, two-piece gelatin capsule.

Patients were randomized by computer to receive either the *Aloe vera* capsules or the placebo capsules first. After three months, each patient crossed over to receive the opposite capsules for the next three months.

The bottles, labels, and capsules were identical in appearance. Desert Harvest randomized the patients by computer so that 8 patients received *Aloe vera* the first three months and the other 5 patients received placebo for the first three months. Patients could terminate the study at any time by completing a termination form.

Patients were allowed to continue their current treatments for IC if they had been using them for more than three months. Most of the patients were on therapy from the Urology Wellness Center, so their baseline pain thresholds were lower than the average IC patient.

The study was designed to include 20 patients, but it was difficult to recruit the patients in the most pain because they were unwilling to risk taking placebo for three months and instead ordered the *Aloe vera* capsules directly from the manufacturer, adding to the successful anecdotal findings of symptom relief but reducing the number of study participants.

It is important to recognize that **the *Aloe vera* used in this study is a highly refined form of the whole plant available only from the manufacturer (Desert Harvest).**

Desert Harvest captures the *Aloe vera* plant's fullest potential through cold processing techniques. Traditional refining methods discard the leaf after using a hand filleting method to remove the inner gel. Ironically, the richest source of the active ingredients (polysaccharides) is in the inner rind of the plant's sap-producing cells. To tap these sources, Desert Harvest starts with the pulverized whole leaf. Proprietary processes then dissolve the cellulose, eliminate contaminants, and remove the anthraquinones, which cause diarrhea. The resulting gel is concentrated by using proprietary freeze-drying techniques to remove excess water without altering or destroying the polysaccharides, vitamins, minerals, amino acids, and enzymes present in the plant. Using the whole leaf and cold processing ensures preservation of the plant's natural ingredients.

Whole-leaf *Aloe vera* from the *Babardensis miller* variety is a crystalline powder in appearance with colors that range from cream to light beige. Moisture content is 8% maximum with a pH (1% solution at 25 degrees) of 4.8 to 4.9.

Liquid forms of *Aloe vera* could not be used for this study since there are only two ways to preserve *Aloe vera* juice—pasteurization (which would render the product ineffective) and citric acid (which causes pain in many IC patients).

Results

Of the 13 patients who were recruited for the study, 8 completed the full six months.

Of the 5 patients who *did not complete the study*:

1. One withdrew in the first month because of an allergy to the *Aloe vera* plant (historically, 1% of the general population can be allergic to *Aloe vera*). Future studies will include a skin test for sensitivity to *Aloe vera*.
2. One patient was unblinded while on placebo because of a reported increase in symptoms and was withdrawn from the study before starting the *Aloe vera*.
3. Three patients were lost to follow-up and never completed the study.

Of the 8 patients who *completed the study*:

1. Seven patients received *relief from at least some of their symptoms (87.5%)*.
2. Four patients experienced *significant relief from all or most of their symptoms (50%)*.
3. Only one patient had *no response* after completing all six months of the study (12.5%).

See charts on the next page for patient response delineation.

Discussion

Of the 13 patients who were recruited for the study, 8 completed the full six months of the trial with no serious adverse events. Response to whole-leaf, freeze-dried *Aloe vera* powder in IC/PBS was significant.

Of the 8 patients who completed the study, 7 patients received relief from at least some of their symptoms of pelvic pain, frequency of urination, pressure, or nocturia (87.5%). Four patients experienced significant relief from all or most of their symptoms (50%). Only one patient had no response after completing all six months of the study (12.5%).

Other Research

A retrospective study of 600 Desert Harvest customers in the spring of 2000 revealed very similar response rates to this clinical trial. After exclusion of those patients who did not complete a three-month trial and customers who did not have a clinical diagnosis of IC/PBS, a study base of 423 patients was left. Of those patients:

1. 42% of customers reported significant relief from the majority of their symptoms.
2. 75% experienced relief from at least one symptom.
3. 25% did not report any difference in symptoms.

Even considering the anecdotal nature of this retrospective study and the lack of controls, we feel these findings are significant and validate the double-blind, placebo-controlled, cross-over study, which is the subject of this paper.

New protocols for a Phase II clinical trial have been written and are awaiting NIH funding for the study. The study will be double-blind and placebo-controlled. Following that are plans for a multi-center follow-on study with 200 patients.

For more information, contact:

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For more information on basic Aloe vera research and a complete bibliography, please link to the physician's portal at: www.desertharvest.com.

