EFFECT OF SHATAPUSHPA ARK IN UDARSHOOL IN KSHEERAPAWASTHA WITH SPECIAL REFERENCE TO INFANTILE COLIC

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Abstract

Udarshool is common in Infants, though it seems to be simple but it affects the regular activities. Excessive cry in infants represents Udarshool. Vata is predominant in Udarshool which can be counteracted by Shoolghna and Vataghna property. Shatapushpa is one of the household drug which is used in various diseases. As Shatapushpa is having stomachic, digestive, antispasmodic property so it is selected for the study. It is easily available in market and by making its Ark it is palatable in infant in drop form. A pre informed and consented randomized open trial was conducted to evaluate the efficacy of Shatapushpaarka in Udarshool (Infantile colic). Total 30 patients of dignosed Udarshool were randomly selected for the study. Arka was administered at 1st visit to reduce lakshanas immediately and twice a day for 3 days. Assessment parameters was assessed before giving medicine and on ½ - 1 hr, 1-2 hrs, 2-3 hrs, 2nd day and on 3rd day of treatment. The patients were assessed as per parameters made for the study.

1) ShatapushpaArka is effective in the management of Udarshool.
2) The Udarshool in kheerapawastha(Infantile colic) has been studied from different samhitas and from different Modern classics in detail.
3) The detail study of the properties and functions of Shatapushpawas carried out.
4) The average analysis of the effect of the drug showed significant improvement on the 3rd
day of treatment as compared to the 1st day, in all symptoms showing the high rate of cure. No adverse reactions have been seen in this study for the drug.

KEYWORDS: UDARSHOOL, INFANTILE COLIC, SHATAPUSHPA ARKA.

INTRODUCTION
Ayurveda is most scientific medical system. Entire Ayurveda has been divided into eight specialty in past. Amongst eight branches of Ashtangas; Kaumarbhritya, Kaumartantra or Balachikitsa is one of the most important branch. Kaumarbhritya includes the management during the antenatal period and purperium as well as pacification of the children’s diseases. During intrauterine life the fetus depends on its mother for growth and development. After birth the infant makes a number of physiological adjustments for its independent existence. The most vital change involves the respiratory, circulatory, digestive and urinary tracts. The digestive system is intimately connected with the process of anabolism, growth and development that are vital at this period of life. The infant suffers many adaptive disturbances in digestive system like flatulence, indigestion, colic etc which ultimately effects the growth and weight gain in infants. So Udarshool has been planned for the study. Here Udarshool is mainly Koshtashool. PrakupitVayu accumulates in Koshta and causes abdominal discomfort and infant start crying excessively. Only lakshanas of Udarshool in ksheerapawastha is mentioned in Kashyap Samhita in Vedanaadhyay is considered in present study. Udarshool (Infantile colic) is one of the most distressing problems of Infancy. As per Ayurvedic science it is common in Ksheerapawastha that is period of one year begins from the birth. In that period balak is on matrustanya. If vatadushitstanyatak bybalak, other than that improper feeding, burping, cows milk ingestion causes Udarshool. It is distressing for the Infant, parents, and for the healthcare provider. It is extremely common in healthy infants. About 40% infants affects from colic. So it is important for Physician to treat this condition immediately as early as possible. The drug used in this study is well suitable in Infancy. Various indigenous drugs have been studied so far in different academic Ayurvedic centers at National & international level but existing study is absolutely new study which is fully fresh and untouched. In the Present study is moreover Ayurvedic clinical approach which seems to be more contributory in the field of pediatric research. The drug “ShatapushpaArka” which is indicated is used in Udarshool .Shatapushpa is such plant which is widely available throughout India. The reference of Shatapushpa is available from Samhita Kala onwards. Shatapushpa is having distinct Vatanuloman and Shoolaghna property. Active principle of
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Shatapushpa that is Dill oil act more rapidly on Colic and give faster relief in small quantity. As arka is having more shelf life ready preparation will get in emergencies. Hence an effort is made to assess the action of drug in Udarshool.

MATERIALS AND METHODS

Different Phases of The Study

The current study was carried out through different systematical designed steps to get the unbiased results. The following steps were adopted to complete the study.

1) Preparation of Shatapushpa Arka.
2) Preparation of Case proforma.
3) Conceptual Study.
4) Study design.
5) Collection and Analysis of data.
6) Discussion and Interpretation of findings
7) Conclusion of the study.

Ethical Clearance

The topic of the study, together with case proforma was submitted to the Institutional Ethical Committee Bharati Vidyapeeth Deemed University College Of Ayurveda, Pune. The significance, aims and objectives, methodology and probable result of the study were clarified to the committee and ethical clearance was obtained for the conduction of the study.

1) Preparation of Shatapushpa Arka

Shatapushpa Arka is prepared as per API
Formulation type – Shatapushpa Arka
Amount - 1 litre

Shatapushpa Arka is liquid preparation obtained by distillation method of seeds of Anethum Sowa
Formulation Composition:
1. Shatapushpa- coarse powder- 150gm
2. Distilled for preparation of arka-1.7 lit.

Method of Preparation

The raw drug sample was collected from local market and was authenticated from Botany Dept of Pune University. Arka was made and it was prepared as per the guidelines of Indian
Pharmacopia in Bharatividypeeth college of Ayurved in Rasashastra and Bhaishajya Kalpana Department.

- Shatapushpa of pharmacopoeial quality taken.
- Washed, dried and powder the ingredient and passed through 355micrometer IS Sieved (sieve number 44) to obtain coarse powder.
- 150 gm of Shatapushpa powder placed in a round bottom standard joint flask. 1.7 lit of water added.
- Proper distillation assembly with double surface condenser and receiving flask attached and enough circulating water to condense the distillate that is Ark.
- Flask placed on a heating mantle. Temperature adjustment done to control when boiling starts and continued the distillation to collect about 1 lit. of Ark.
- Stored in containers and packed them air tight to protect from light and moisture.

**Description**

Shatapushpaarka is a turbid liquid with pleasing flavor of sowafruits and sweetish spicy, slightly bitter taste.

**Distillation apparatus assembly**

![Distillation apparatus assembly](image-url)

*Figure C-1*
Shatapushpa bottles

Figure C-2

DOSE

Appropriate dose given by Fried’s Rule

\[ \text{CHILD DOSE} = \text{AGE (month)} \times \text{ADULT DOSE} \]

150

As per API Adult dose of Ark 10-20 ml BD.

Age wise Calculated dose of Ark is mentioned as follows

Table C-1:-Dose schedule

<table>
<thead>
<tr>
<th>AGE (months)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOSE(ml)</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
<td>0.6</td>
<td>0.7</td>
<td>0.8</td>
<td>0.9</td>
<td>1.1</td>
<td>1.2</td>
</tr>
</tbody>
</table>

2) Preparation of the case proforma

The case proforma was finalized after studying the subject in detail and discussions with the departmental experts. The case proforma consist of four parts. The first part consists of primary data and consent form. The second part consists of the presenting complaints and history of the disease, past illness, family, birth history and immunization history. The third part consists of general examination and systemic examination. The fourth and final part consists of various observations during followup and assessment criteria.

The proforma was discussed in the institutional ethical committee of the college and got approved.

3) Conceptual study

For the purpose of the present study, various text book were get reffered to get the description about Udarshoolwhich was mentioned by various authors in different classics. Morever
several modern text books, journal and other researches done on Udarshool i.e. Infantile colic collected from internet are also included. The literary review with conceptual study done was already placed in the first part of dissertation

4) Study Design
Single group observational open study was conducted in infants of Udarshool i.e. Infantile colic

Source of data
Sample source
Kaumarabhritya-Balaroga O.P.D of Bharati Medical Foundation’s Ayurved Hospital Pune.

Selection Of Cases
Total 30 infants with complaints of Udarshool explained in classics under Vedanaadhyay and who comes under the inclusion criteria were randomly selected for the study.

Age group: From 2 months to 1 year.
Number of cases: 38 Cases were registered 8 cases were drop out.
Duration:-3 days. Infant of recurrent attack continued trail drug for 7 days.
Route of administration:- Oral

Follow up
at 1st visit, ½ -1 hour, 2-3 hour & on 2nd & 3rd day.

INCLUSION CRITERIA
• Subjects of age group 2 months to 1 year.
• Subjects of both the sex.
• Full term healthy neonates.
• Subjects suffering from definitive symptoms of Udarshool that is Infantile Colic.
• Subject having history of udarshool that is Infantile colic.
• Subjects of mother having vatajstanyadushti.

EXCLUSION CRITERIA
• Subjects below 2 months and more than 1 year.
• Subjects associated with symptoms like vomiting, diarrhoea, fever or any other pathology.
• Subjects who is having congenital anomalies
• Subjects with unstable vitals

5) Collection and Analysis Of Data
The present study includes 30 infants of Udarshool. All of them and their parent/guardian were made to understand about the study and the informed consent was obtained. Only after getting the informed consent they were included in the study. The consent form is attached along with the case paper.Detailed history of patients was taken which included vital data, history of presenting complaints, past history, family history and treatment history. Vital data such as name, sex, address were collected from the patient. The patient’s parent/guardian was inquired about the cause of disease Udarshool (Infantile Colic). Both Aharaj&Viharaj etiological factors like Cow’s Milk ingestion by Infant and Mother, Bottle feeding, Travelling, rutuvaishamya, were inquired. An effort was made to evaluate the status of Lakshan of Udarshool with the help of prepared table before and after the treatment. The mode of onset of Udarshool, duration, frequency, occasional variation in the pattern and periodicity was noted down. The factors which aggravates Udarshool like early morning, afternoon, evening, Night, exposure to cold food stuff, cold environment, similarly relieving factors like hot food stuffs, hot environment, Swedana etc were enquired and noted. With the help of Dashvidhapareeksha various factors like Samhanana, Satwa, Agni, Bala, DehaBala, Ahara Shakti and koshta of the patient were ascertained and recorded in the proforma. Anthropometry only weight were recorded by using suitable instruments. While examining vikrutipareeksha evolution of doshas were done with the help of ashtavidhapareeksha including Nadi, Mala, Mutra, Jivha, Shabda, Sparsha, Drik, Akriti. By using ayurvedic and modern parameters all the strotases were examined before and after the treatment. Special attention was given to Annavahastrotopareekshan. Evaluation of detailed Gastrointestinal system was made to diagnose the disease and to evaluate the improvement in the condition of the children before and after treatment. Stanyaparikshan done in all patients. Procedure.

Stanyaparikshasamagri
a. Stanya taken from mother of infant having Udarshool.

b. With the help of droper it was poured in droplet form in the transparent glass filled with distilled water.

c. Observations:-
   - In Vatajstanyadushti – Stanya floats on Water
   - In PittajStanyadushti- yellowish lines seen in water.
   - In KaphajStanyadushti- Stanya goes at the base.

In present study, Observation done on only number of Vatajstanyadushti patients are present. Councelling of mother done for proper breast feeding technique, proper burping, to avoid vataprakopakaaharvihar, bottle feeding, cows milk, janamghutti.

1. Proper feeding - babies should be fed for 15-20 min to take adequate feed. Baby should be allowed to empty one breast before offering the other breast. Baby must be statisfied for at least 2hrs before he starts crying for the next feed. Proper feeding techniques explained in detail.(figure A-1, figure A-2)

2. Proper burping-burping should be done after each and every feed for at least 10-20min.
   Burping procedure is necessary to expel out swallowed air. Infant should held in erect postion over the mothers shoulder or her lap with or without gentle rubbing or patting of the back to assist in expelling swallowed air.(figure A-3)

3. Bottle feeding- When a feeding bottle with milk is inverted, there should be a fine spray of milk for 1-2 hrs and then milk should flow in regular drops and not as a stream. The child should be taken in lap and offered the bottle. Mother must pay full attention and interact with her baby while bottle feeding. She should provide close skin- to- skin contact and eye contact to the baby while bottle feeding. The bottle should be tilted enough so that nipple is completely filled with milk to avoid swallowing of air by the baby. The nipple may have to be removed from the baby’s mouth when it gets collapsed to relieve negative pressure or vaccum in the bottle. After the feed, baby should be made to sit or put on shoulder to eructate the swallowed air. After burping, the baby may be placed on his back or right lateral position with head end slightly raised.

4. Janamghutti- it is claimed to cure constipation as well as diarrhoea and is advertised on Doordarshan.

5. Maternal diet- mother should avoid urad dal, Bengal gram, cabbage, brococoli, sprouts, beans, cows milk,etc.

6. Primi mothers- Self confidence in her ability to successfully breast fed, freedom from anxiety, adequet rest, emotional support and vigorous sucking by an active baby. For more
lactation culturally popular galactoguge like garlic, ginger, coconut, jaggery, bajra, ghee, fenugreek, panjiri, sonth, khaskhas, pepper, margosa, jeevanthi, etc.

7. Cows milk- causes protein allergy. Animal milk should not be given. First 6 months breast milk is advocated. It is generally agreed that adequate breast feeding alone is sufficient to support the growth of infants.

**ASSESSMENT CRITERIA**

1. Assessment was made by observing the improvements in the clinical features based on the gradation before and after treatment.

2. Assessment was made on the following schedule.
   - Initial assessment before the commencement of treatment.
   - ½ -1 hour, 2-3 hour & on 2nd & 3rd day.

**GRADATION OF CLINICAL FEATURES**

Assessment of the clinical symptoms depending on the severity was done by the scoring pattern given below

Kaal- Morning/afternoon/evening/night

**RughnasamvedyaLakshanas**

RAUTI- Graded by Darshan and PrashnaPariksha
Grade 0- crying for less than 5 min/non suspected.
Grade 1- 5-10 mins
Grade 2- 10-15 mins
Grade 3- above 15 mins

**STANAM VYUDASYTE- Graded by PrashnaPariksha**

Grade 0- Slient after feeding
Grade 1- willing to feed but not silent
Grade 2- not willing to feed and continous excessive cry

**MUKHSWED- Graded by Darshan and PrashnaPariksha**

Grade 0- absent
Grade 1- present
VaidyasamvedyaLakshans
UDARSTABDHTA- Graded by SparshanPariksha by Percussion.
Grade 0 - absent.
Grade 1 – Present.

ABDOMINAL Girth
SparshanPariksha done and girth measured in centimeters.

SHAITYA
Sparshan and Prashna Pariksha done. Mean Planter Temperatue recorded by Infrared.
All parameters observed before and after treatment.

RESULTS OBSERVATIONS
• AGE
Showing Age wise distribution of 30 patients of Udarshool.
Table -D 1: Age wise distribution of patients

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Months</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>3 Months</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>4 Months</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Observation
In this study out of 30 patients, 50%(15) are of 2 months of age, 40%(12) are of 4 months of age, 10%(3) are of 4 months of age.

2) RUTU
Showing Rutu wise distribution of 30 patients in Udarshool
Table –D 2: Rutu wise distribution of patients

<table>
<thead>
<tr>
<th>RUTU</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRISHMA</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>HEMANT</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>SHISHIR</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>VASANT</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Observation
In this study out of 30 patients, 50%(15) having Udarshool in grishma, 30%(9) having in hemant, 13%(4) in shishir, 7%(2) in vasant.
3) GRAVIDA

Showing Gravida wise distribution of 30 patients of Udarshool

Table -D 3: Gravida wise distribution of patients

<table>
<thead>
<tr>
<th>GRAVIDA</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMI</td>
<td>17</td>
<td>56.7</td>
</tr>
<tr>
<td>G2</td>
<td>8</td>
<td>26.7</td>
</tr>
<tr>
<td>G3</td>
<td>5</td>
<td>16.7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Observation
In this study out of 30 patients; 56.7% (17) infants of primi mothers having Udarshool, 26.6% (8) infants of G2 mothers, 16.7% (5) infants of G3 mothers.

4) KALA

Showing kala wise distribution of 30 pateint of Udarshool

Table-D 4:- Kala wise distribution of pateints

<table>
<thead>
<tr>
<th>KALA</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>9</td>
<td>30</td>
</tr>
<tr>
<td>Afternoon</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Evening</td>
<td>14</td>
<td>46.7</td>
</tr>
<tr>
<td>Night</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>E/N</td>
<td>2</td>
<td>6.7</td>
</tr>
<tr>
<td>M/N</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>TOTAL</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Observation
In this study out of 30 patients; 47%(14) infants having attack on evening, 30%(9) infants having attack on morning, 10%(3) having attack on morning and night, 7% (2) infants having attack on evening and night, 3%(1) having attack at night, 3%(1) having attack at afternoon.

Udarstabdhta

Table-D 5: Showing effect of Shatapushpa ark on Udarstabdhta

<table>
<thead>
<tr>
<th>UDARSTAHD HTA</th>
<th>Mean</th>
<th>S.D.</th>
<th>S.E.</th>
<th>Wilcoxon Signed Rank Statistic 'W'</th>
<th>P-Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.9</td>
<td>0.1</td>
<td>0.3</td>
<td>0.3</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Observations
Before treatment the mean value was 0.9, after treatment it is reduced to 0.06, after treatment it is reduced to 0.1, hence the treatment is significant. Using Wilcoxon Signed Rank Test, P-Value is less than 0.05 hence, Shatapushpa Ark is significantly effective on Udarstabdhta.
Table-D 6: Percentage wise effect of Shatapushpa ark on Udarstabdhata at every follow up

<table>
<thead>
<tr>
<th>UDARSTAHDHTA</th>
<th>1ST VISIT</th>
<th>1/2-1 HOUR</th>
<th>2-3 HOUR</th>
<th>2ND DAY</th>
<th>3RD DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 0-absent</td>
<td>(2)6%</td>
<td>(11) 36%</td>
<td>(27) 90%</td>
<td>(28) 93%</td>
<td>(27) 90%</td>
</tr>
<tr>
<td>Grade 1-present</td>
<td>(28) 93%</td>
<td>(19) 63%</td>
<td>(3) 10%</td>
<td>(2) 6%</td>
<td>(3) 10%</td>
</tr>
</tbody>
</table>

At first visit, Udarstabdhata were present in (28)93% infants & absent in (2)6% infants. Follow up 30 patients were taken at ½-1 hr, 2-3 hr, 2nd day & 3rd day. At ½-1hr-Udarstabdhata were present in (19)63%, absent in (11) 36% infants. After 2-3hr Udarstabdhata were present in (3)10% infants & absent in (27) 90% infants. On 2nd day Udarstabdhata were present in (2) 6% infants & absent in (28) 93% infants. On 3rd day Udarstabdhata were present in (3)10% infants & (27) 90% infants. Hence we conclude that Shatapushpa Arka reduces Udarstabdhata within 2-3 hrs after expulsion of flatulence, burping & passing motion.

RAUTI

Table -D 7: Showing effect of Shatapushpa Ark on Rauti

<table>
<thead>
<tr>
<th>RAUTI</th>
<th>Mean</th>
<th>S.D.</th>
<th>S.E.</th>
<th>Wilcoxon Signed Rank Statistic ‘W’</th>
<th>P-Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.7</td>
<td>0.3</td>
<td>0.7</td>
<td>0.7</td>
<td>0.1</td>
<td>.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-4.915</td>
<td>.000</td>
</tr>
</tbody>
</table>

Observations

Before treatment mean value was 2.7, after treatment it is reduced to 0.30, hence signhificant result observed. Using Wilcoxon Signed Rank Test, P-Value is less than 0.05 hence we can say that, Shatapushpa Ark is significantly effective on Rauti.

Table-D 8: Percentage wise effect of Shatapushpa ark on Rauti at every follow up

<table>
<thead>
<tr>
<th>RAUTI</th>
<th>1ST VISIT</th>
<th>1/2-1 HR</th>
<th>2-3 HR</th>
<th>2ND DAY</th>
<th>3RD DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rauti for less than 5 min/non suspected.</td>
<td>(1)3%</td>
<td>(3)9%</td>
<td>(12)40%</td>
<td>(21)70%</td>
<td>(26)86%</td>
</tr>
<tr>
<td>5-10 mins</td>
<td>(2)6%</td>
<td>(5)16%</td>
<td>(10)33%</td>
<td>(7)23%</td>
<td>(1)3%</td>
</tr>
<tr>
<td>10-15 mins</td>
<td>(1)3%</td>
<td>(15)50%</td>
<td>(8)26%</td>
<td>(1)3%</td>
<td>(2)6%</td>
</tr>
<tr>
<td>above 15 mins</td>
<td>(26)86%</td>
<td>(7)23%</td>
<td>(0)</td>
<td>(1)3%</td>
<td>(1)3%</td>
</tr>
</tbody>
</table>
STANAM VYUDASYATE

Table D 9: Showing effect of Shatapushpa Ark in Stanam vyudasyate.

<table>
<thead>
<tr>
<th>STANAM VYUDASYATE</th>
<th>Mean BT</th>
<th>S.D. BT</th>
<th>S.E. BT</th>
<th>Wilcoxon Signed Rank Statistic 'W'</th>
<th>P-Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AT</td>
<td>AT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9</td>
<td>0.1</td>
<td>0.4</td>
<td>0.3</td>
<td>-5.002a</td>
<td>.000</td>
<td>Significant</td>
</tr>
</tbody>
</table>

Observations
Before treatment mean value was 1.9, after treatment it is reduced to 0.1, hence significant result observed. Using Wilcoxon Signed Rank Test, P-Value is less than 0.05 hence, Shatapushpa Ark is significantly effective on Stanam vyudasyate.

Abdominal girth

Table D 13: Showing effect of Shatapushpa Ark on Abdominal girth

Graph no 17: Showing effect of Shatapushpa Ark on Abdominal girth

Using Paired t- Test to test significant visit wise, we observe that, P-Value is less than 0.05 for each of the visit i.e. Half to One hour, after 2-3 hour, Second Day and Third day. We can conclude that there is significant result observed at each of the follow up.

Graph no18: Showing effect of Shatapushpa Ark on Shaitya
Using Paired Test to test significant visit wise, we observe that, P-Value is greater than 0.05 for Second day follow up while for each of the visit i.e. Half to One hour, after 2-3 hour, and Third day it was less than 0.05. We can conclude that there is significant result observed at each of the follow up except at day 2.

AFTER MEDICINE

Table D 15: After giving Shatapushpa Ark

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleching</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>Flatulence</td>
<td>13</td>
<td>43.3</td>
</tr>
<tr>
<td>Motion</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>B/F</td>
<td>5</td>
<td>16.7</td>
</tr>
<tr>
<td>F/M</td>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>29</td>
<td>96.7</td>
</tr>
</tbody>
</table>

After giving Shatapushpa arka to 30 patients out of that, 45%(13) infants passed flatulence, 17%(16.7) infants passed both flatulence and blenching, 14% (4) infants passed both flatulence and motion, 14%(4) infants bleching, 10% (3) passed motion.

DISCUSSION AND CONCLUSION

Probable Mode Of Action

- Trail drug selected for the present study Shatapushpa by preparing Ark it was easily palatable.
- Shatapushpa is having properties like Katu, Tikta rasa, Ushnaveerya, Katuvipak, Kapha-Vataghna, Shoolghna, Vatanuloman, Deepan, Pachan Property.
- Ruksha & Sheeta are the gunas of the Vatadosha; Snigdha&Ushna are opposite to that. It acts as Vatashamak which leads to decrease in Strotorodh. As Strotorodh is relived the prakrutgati of Vayu is turned to prakrutgati. Apanvayu gets Anuloman property.
- Accumulated vayu in Koshta causes Udarabdhata. Due to Ushna, Snigdhaguna&Vatanuloman property. Accumulated Vayu expels out &Udarabdhata is reduced.
- Due to aggravated Vayu; tremors & flatulence enters in Koshta& causes cutting, stretching, pricking type of pain. Due to pain Infant cries excessively. Aggravated Vayu is relieved by Vatanuloma property & cutting, stretching, pricking type of pain is relieved by Shoolaghna property. As pain gets decreased Rauti also decreased.
Shatapushpa is having Katu, Tikta rasa. Katu rasa is ‘Agnideepan’ due its Agneya attribute. Tikta rasa is composed of Vayu & Aakashmahabhuta. Vayu is important to kindle Pachakagni; Samanvayu is important to keep Pachakagni in equilibrium. Being composed of Vayu- Aakashmahabhuta Tikta rasa performs Deepan action. It removes inhibitory factors due to its Pachan activity. Thus it stimulates Agni by Deepan action.

Dill oil is having Carminative property that soothes the digestive system. B- phellandrene, alpha pinene attribute to the carminative property oil that helps in prevention of formaton of gas & aid in the expulsion of gas. It has exclusive Anti- spasmodic property.

Shatapushpaarka works at various levels of Samprapti of Udarshool& corrects doshas& improves the function of Annavahastrotasi.eKoshta.

**CONCLUSION**

The clinical study of ShatapushpaArka was carried out and concluded that-

- In all major Samhitas of Ayurveda Udarshool has been described as a symptom and as a disease.
- Purvarupa & types has mentioned in various samhitas but Udarshool in ksheerapawastha (Infantile colic) is sudden attack so no purvarupa & types considered in this study.
- In Kashyap Samhita Samprapti has been described. The same Samprapti was observed in Present study. Similarly pathogenesis described in Nelson the text book of Paediatrics was same observed in Infantile colic.
- Rauti, Udarstabdhata, Stanamvyudasyte, Mukhsweda, Shaitya were observed in all patients.
- The Lakshanas of Udarshool in kheerapawastha resembles the symptoms of Infantile colic.
- Udarshool is more observed in 2 months-4 months of age.
- Hetu like improper burping, improper feeding and cows milk ingestion were commonly found.
- Udarshool(Infantile colic) is more observed in infants of Primi mothers.
- Udarshool was more in Grishmarutu.
- Infants of Colic attack was more found at evening period.
- Ark is having best shelf life, good odour and taste as compared to PanchvidhKashayKalpana and it is easily palatable in infants. Active principle of Shatapushpa is extracted and that act more rapidly on Colic and gives faster relief in small quantity. It reduces Udarshool in ½- 2 hrs.
Ark is ready preparation; available in emergencies.

The average analysis of the effect of the drug showed significant improvement on the 3rd day of treatment as compared to the 1st visit, in all symptoms showing the high rate of cure.

No adverse reactions have been seen in this study for the drug

So Shatapushpa ark relieves associate symptoms of Udarshool easily palatable and has no side effect therefore it fits in the category of ideal medicine as described in Ayurvedic texts.

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