Clinical evaluation of Veerataru (Dichrostachys cinerea Linn.) in the management of Mootrakruchchhra (Dysuria)

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Abstract

Veerataru is quoted to be effective in various conditions of Mootravaha Srotodushti such as Mootrakruchchhra (Dysuria), Mootroghata (Anuria), Ashmari (Urinary calculi), Sharkara (Concretions) etc., by various Acharyas. Mootrakruchchhra (Dysuria) is a disease of Basti (Bladder). It comes under Mootraaprarvrittiyayadhi, where Kruchchhrata (Shoola –Pain and Daha-Burning) during mootra pravritti is the chief symptom. As per modern view, dysuria is a leading feature of lower or mid urinary tract infection. Antibiotics have their own limitations due to re-infections and recurrence even after long-term therapy, due to development of resistance of the microorganisms to the drugs. By considering all the above facts and to fulfill the lacuna about the absence of scientific data of Veerataru, the present research work had been taken up especially to evaluate its efficacy on Mootrakruchchhra (Dysuria). Patients suffering from Mootrakruchchhra (Dysuria) were selected and divided into two groups, i.e. Group A received Kwatha (decoction) of Veerataru-Dichrostachys cinerea Linn. (Trial drug) and Group B received Kwatha of Punarnava-Boerhaavia diffusa Linn. (Standard control) respectively. The effects of therapy were assessed by a specially prepared clinical research proforma. The result showed better symptomatic relief in Group A, i.e. trial drug as compared to Group B, i.e. standard control group.

Key words: Mootrakruchchhra, Veerataru (Dichrostachys cinerea Linn.), Mootravaha Srotodushti

Introduction

Veerataru is the first drug of the Veeratarvadigana coined from its name; the drug has not achieved considerable recognition in Ayurvedic clinical practice until now. It has wide spread use in folk and tribal medicine. In Sushrutasamhita much emphasis has been given on Veerataru to treat Mootrakruchchhra, Mootroghata, Ashmari, Vatavyadhi etc., in Veeratarvadi gana.[1] Mootrakruchchhra is a disease of Basti. It comes under Mootraaprarvrittiyayadhi, where Kruchchhrata (Shoola and Daha) during Mootraprarvitti is the chief symptom.[2] The clinical evaluation of the drug Veerataru in Mootrakruchchhra is specially focused on Ayurvedic basis. Relevant observation of modern investigations like blood urea, Serum creatinine (S. creatinine), Serum calcium (S. calcium), Serum uric acid (S. uric acid) etc., was considered as supportive tools. Main aim of present study was to explore clinically the lesser-known utilized drug Veerataru. As the drug requires scientific validation for its efficacy on Mootrakruchchhra, the drug was subjected for clinical study to evaluate its therapeutic effect described in classics.

Materials and Methods

Total 66 clinically diagnosed and confirmed cases of Mootrakruchchhra completed the current trial. The cases were selected from Inpatient Department and Outpatient Department of Dravyaguna, Institute for Post Graduate Teaching and Research in Ayurveda Hospital, Jamnagar. Specially prepared proforma was used to evaluate the patients during the study and follow up. Patients having clinical features of Mootrakruchchhra, aged above 5 years were included in to the trial. Patients having any anatomical defects in kidney, ureters and bladder (KUB), diabetic or cardiac patients, and patients having other severe systemic disorders or the condition where the symptoms manifests as a complication of other diseases like Arbuda (Tumor), gonorrhea, thread worms infection, hysteria etc., were excluded. In the patients of both the group routine urine examination, ultrasound abdomen X-ray KUB and hematological, biochemical investigations (S. creatinine, uric
acid, S. calcium, blood urca) were carried out before and after completion of the treatment.

**Administration of drugs**
66 patients of Mootrakruchcha were randomly divided in two following two groups.

**Group A (trial group)**
35 patients were administered with Kwatha (Decoction) form of Veertaru (made by 15 g. of Yavakut Churna) for 21 days, twice daily.

**Group B (standard control group)**
31 patients were administered with Kwatha (Decoction) form of Panarnava (Boerhaavia diffusa Linn.) made by 15 g. of Yavakut Churna for 21 days, twice daily. Patients were advised to avoid Ativyayam, Madyapan, Tikshna Ahara and Aushadha, Anupa Mamsa Sevana, Adhyashana, Ajirmaashana and Drutgati Yana.

**Criteria of assessment**
All the patients registered for the current study were assessed on following parameters before and after the course of therapy to work out the efficacy of the treatment produced in the patients of both groups.

**A: Subjective improvement**
A specific rating scale for subjective parameters was utilized to assess the efficacy of the therapy. Changes found in signs and symptoms like Sashoola (painful micturation), Sadaha (burning micturation), Abhikshana (increased frequency) and Alpamoootrapravrutti (Oliguria) related to Mootrakruchcha were analyzed statistically.

**B: Pathological and biochemical changes**
The results were assessed based on the changes observed in biochemical and pathological parameters.

**Criteria for overall assessment of therapy**
The total effect of therapy was assessed considering overall improvement in signs and symptoms derived by following formula:
- Complete remission: 100% relief
- Marked improvement: >75% relief
- Moderate improvement: 50-75% relief
- Mild improvement: 25-50% relief
- Unchanged: <25% or no relief.

**Statistical analysis**
The information gathered based on observation made about various parameters was subjected to statistical analysis in terms of mean, standard deviation and standard error. t-test was carried out and calculated values are compared with table value at $P < 0.05$, $P < 0.01$, $P < 0.001$ to find out the level of significance. The obtained results were interpreted as:
- Insignificant: $P > 0.05$
- Significant: $P < 0.05$
- Highly significant: $P < 0.01$

**Results**

**Effect of therapy on Sashoolmoootrapravrutti**
In Group A, the relief reported by the patients for pre, during and post-Sashoolmoootrapravrutti was 68.18%, 79.41% and 83.33% respectively. In Group B, the relief got by the patients for pre, during and post-Sashoolmoootrapravrutti was 56.61%, 58.20% and 63.15% respectively. The effect of the therapy of both the drugs on Shoola was found to be statistically highly significant, though the test drug was slightly more effective than the standard control [Table 1].

**Effect of therapy on Sadahamootrapravrutti**
Relief noted by the patients in Group A for pre, during and post-Sadahamootrapravrutti was 87.50%, 59.40% and 83.33% respectively. In Group B for pre, during and post-Sadahamootrapravrutti was 52.77%, 38.67% and 39.13% respectively. The effect of the therapy of both the drugs on Daha was found to be statistically highly significant, though the test drug was slightly more effective than the standard control [Table 2].

**Effect of therapy on Alpa and Abhikshanamootrapravrutti**
Data shows that 92.30% and 70.59% relief was found in Alpa (Oligouria) and Abhikshana (increased frequency) Mootrapravritti respectively in group A whereas 86.96% and 72.41% in Group B, the effect of the therapy of both the drugs on Alpa and Abhikshana Mootrapravritti was found to be statistically highly significant, though the effect of standard control drug was slightly more effective than the test drug [Table 3].

**Total effect on the patients of Mootrakruchcha**
The data regarding the total effect of the therapy by the both groups are shown in above table in Group A. 45.71% patients observed marked improvement, 37.14% patients observed moderate improvement, 11.42% observed complete remission from the disease while 5.71% observed mild improvement while in Group B, 41.93% patients showed moderate and mild improvement.

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**Table 1: Effect of therapy on Sa-Shoolamootrapravrutti**

| Relation with micturation | Group | Mean | SD | SE | T | P |
|---------------------------|-------|------|----|----|---|---|
|                           |       | BT   |    |    | AT |    |
| Pre                       | A     | 22   | 1.0| 0.34| 68.18 | 0.68 | 0.48 | 0.10 | 6.71 | <0.001 |
|                           | B     | 15   | 2.06| 1.00| 51.61 | 1.06 | 0.70 | 0.18 | 5.87 | <0.001 |
| During                    | A     | 29   | 1.17| 0.24| 79.41 | 0.93 | 0.65 | 0.12 | 7.70 | <0.001 |
|                           | B     | 29   | 2.31| 0.96| 58.20 | 1.34 | 0.76 | 0.14 | 9.42 | <0.001 |
| Post                      | A     | 10   | 1.2 | 0.2 | 83.33 | 1.00 | 0.26 | 0.26 | 3.87 | <0.01  |
|                           | B     | 12   | 1.58| 0.58| 63.15 | 1.00 | 0.58 | 0.25 | 4.06 | <0.01  |

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error
improvement, 9.67% patients showed marked improvement, 3.22% showed completed remission from the disease while 3.22% remained unchanged, i.e. showed no improvement [Table 4].

Pathological investigation
In Group A erythrocyte sedimentation rate (ESR) decreased by 6.40% while monocyte count decreased by 3.67% but there was no change in Group B which was statistically significant. No remarkable changes were found in other pathological parameters. In Group B, total count decreased by 1.72%, differential count decreased by 2.67%, monocytes decreased by 8.16% while ESR decreased by 5.55%. Eosinophils increased by 18% whereas hemoglobin increased by 1.12%. This increase and decrease was within normal range except ESR and the changes were statistically non-significant [Tables 5 and 6].

Biochemical investigation
In Group A, blood urea decreased by 6.41% whereas S. creatinine, S. calcium and uric acid increased by 5.73%, 1.20% and 6.92%. The changes were within the normal range except blood urea but the changes were not statistically significant. In Group B, there were no significant or remarkable changes found in biochemical parameters except 7.57% decrease in blood urea which was a significant decrease at \( P < 0.05 \) [Tables 7 and 8].

Overall effect of therapy on all symptoms of patients
The overall effect on all symptoms of the patients was found in Group A 80.91% and 73.68% was found in Group B, both the results were statistically highly significant [Table 9].

Discussion
In Group A the drug has shown pronounced effect in relieving Shoola. Vitiated Vata (Apanavata Vaigunya)\(^9\) is main causative factor for Shoola. The drug Veerataru is effective on Vatadosha due to its Ushnareya. The same is reflected in the actions quoted for the drug by Bhavaprakashnighantu in Gudychadivarga\(^14\) 502/3 as Anilartijita and Rajanighantu in Shalmalyadi Varga\(^7\) 71-72 as Vatamayavinashana. Daha was relieved more effectively in the patients of Group A. Daha is due to the predominance of Pitta. According to Acharya Kashyapa, Pitta acts as the chief causative factor in the pathogenesis of Mootrakruchchhra.\(^8\) The drug, due to its Tiktarasa acts as Pittashamaka. Tiktarasa is said to be first among the three Rasas, which alleviates Pittadosha.\(^7\) The symptoms namely Alpa and Abhikshnamootrapravrutti were relieved significantly in group A. The symptoms are mainly due to Pratilomatva of Vata\(^10\) and the drug Veerataru is also said to be Vatamayavinashana.\(^9\) Besides, the drug is attributed with the property of Mootravirekakara by Ashtanga Samgrahakara.\(^9\)

Table 2: Effect of therapy on Sa-Dahamootrapravrutti

| Relation with micturation | Group | n   | Mean | AT  | SD  | SE  | T   | P    |
|---------------------------|-------|-----|------|-----|-----|-----|------|------|
| Pre                       | A     | 08  | 1.0  | 0.13| 87.50| 0.87| 0.35 | 0.13 | 7.00 | <0.001 |
|                           | B     | 17  | 2.11 | 1.00| 52.77| 1.11| 0.86 | 0.21 | 5.37 | <0.001 |
| During                    | A     | 26  | 1.23 | 0.50| 59.40| 0.73| 0.83 | 0.16 | 4.50 | <0.001 |
|                           | B     | 30  | 2.50 | 1.53| 38.67| 0.96| 0.89 | 0.16 | 5.95 | <0.001 |
| Post                      | A     | 17  | 1.06 | 0.18| 83.33| 0.88| 0.49 | 0.12 | 7.50 | <0.001 |
|                           | B     | 14  | 1.60 | 1.00| 39.13| 0.57| 0.50 | 0.13 | 4.84 | <0.001 |

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

Table 3: Effect of therapy on Alpa and Abhikshna mootra pravrutti

| Complaints                        | Group       | n   | Mean  | AT  | X   | SD  | SE  | T    | P    |
|-----------------------------------|-------------|-----|-------|-----|-----|-----|-----|------|------|
| Alpa Mootrapravrutti              | A           | 25  | 2.08  | 0.16| 92.30| 1.92| 0.76 | 0.15 | 12.64| <0.001 |
| Alpa Mootrapravrutti              | B           | 30  | 1.53  | 0.20| 86.96| 1.33| 0.76 | 0.14 | 9.63 | <0.001 |
| Abhikshna Mootrapravrutti         | A           | 24  | 1.42  | 0.42| 70.59| 1.00| 0.51 | 0.10 | 9.59 | <0.001 |
| Abhikshna Mootrapravrutti         | B           | 24  | 1.21  | 0.33| 72.41| 0.88| 0.54 | 0.11 | 7.99 | <0.001 |

BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

Table 4: Total effect on the patients of Mootrakruchchhra

| Total effect            | Group A | Group A % | Group B | Group B % |
|-------------------------|---------|-----------|---------|-----------|
| Complete remission      | 4       | 11.42     | 1       | 3.22      |
| Marked improvement      | 16      | 45.71     | 3       | 9.67      |
| Moderate improvement    | 13      | 37.14     | 13      | 41.93     |
| Mild Improvement        | 2       | 5.71      | 13      | 41.93     |
| Unchanged               | 0       | 0         | 1       | 3.22      |

Table 5: Effect of therapy on Mootrakruchchhra

| Complaints                        | Group A | Group A % | Group B | Group B % |
|-----------------------------------|---------|-----------|---------|-----------|
| Complete remission                | 4       | 11.42     | 1       | 3.22      |
| Marked improvement                | 16      | 45.71     | 3       | 9.67      |
| Moderate improvement              | 13      | 37.14     | 13      | 41.93     |
| Mild Improvement                  | 2       | 5.71      | 13      | 41.93     |
| Unchanged                         | 0       | 0         | 1       | 3.22      |

Conclusion
From the clinical study, it has been observed that Veerataru Kwatha is effective on most of the cardinal symptoms of Mootrakruchchhra and statistically highly significant effect was observed.

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Table 5: Group A effect of therapy on pathological investigations

| Pathological investigation | n  | Mean BT | Mean AT | %    | X    | SD  | SE  | t     | P   |
|----------------------------|----|---------|---------|------|------|-----|-----|-------|-----|
| TLC                        | 35 | 6414.29 | 6462.86 | 0.76↑ | 48.57 | 830.44 | 140.37 | 0.35  | >0.05 |
| DLC-N                     | 35 | 58.29   | 57.71   | 0.98↓ | 0.57  | 5.91  | 0.9992 | 0.57  | >0.05 |
| L                          | 35 | 35.09   | 35.26   | 0.49↑ | 0.17  | 4.87  | 0.82 | 0.21  | >0.05 |
| E                          | 35 | 3.37    | 3.26    | 0.11↓ | 0.11  | 1.16  | 0.19 | 0.58  | >0.05 |
| M                          | 35 | 3.11    | 3.00    | 3.67↓ | 0.11  | 0.58  | 0.09 | 1.16  | >0.05 |
| B                          | 35 | 0       | 0       | 0.00  | 0     | 0     | 0    | >0.05 |
| Hb                         | 35 | 12.31   | 12.31   | 0.002 | 0.002 | 0.69  | 0.12 | 0.002 | >0.05 |

TLC: Total leukocyte count, DLC: Differential leucocyte count, ESR: Erythrocyte sedimentation rate, Hb: Hemoglobin, BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

Table 6: Group B effect of therapy on pathological investigations

| Pathological investigation | n  | Mean BT | Mean AT | %    | X    | SD  | SE  | t     | P   |
|----------------------------|----|---------|---------|------|------|-----|-----|-------|-----|
| TLC                        | 31 | 6900    | 6780.64 | 1.72↓ | 119.35 | 1012.39 | 181.83 | 0.65  | >0.05 |
| DLC-N                     | 31 | 56.74   | 55.23   | 2.67↓ | 1.51  | 7.65  | 1.37 | 1.10  | >0.05 |
| L                          | 31 | 35.90   | 35.96   | 0.18↑ | 0.06  | 5.92  | 1.06 | 0.06  | >0.05 |
| E                          | 31 | 3.22    | 3.80    | 18.00↑ | 0.58  | 1.99  | 0.35 | 1.60  | >0.05 |
| M                          | 31 | 3.16    | 2.90    | 8.16↓ | 0.25  | 0.77  | 0.14 | 1.85  | >0.05 |
| B                          | 31 | 35.90   | 35.96   | 0.18↑ | 0.06  | 5.92  | 1.06 | 0.06  | >0.05 |
| Hb                         | 31 | 12.40   | 12.54   | 0.146 | 0.74  | 0.13 | 1.08 | >0.05 |
| ESR                        | 31 | 18.58   | 17.54   | 5.55↓ | 1.03  | 12.74 | 2.29 | 0.45  | >0.05 |

TLC: Total leukocyte count, DLC: Differential leucocyte count, ESR: Erythrocyte sedimentation rate, Hb: Hemoglobin, BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

Table 7: Group A effect of therapy on biochemical investigations

| Biochemical investigation | n  | Mean BT | Mean AT | %    | X    | SD  | SE  | t     | P   |
|----------------------------|----|---------|---------|------|------|-----|-----|-------|-----|
| Blood urea                | 35 | 26.28   | 24.20   | 6.41↓ | 1.68  | 12.41 | 2.10 | 0.8   | >0.05 |
| S. creatinine             | 35 | 0.99    | 1.05    | 5.73↑ | 0.05  | 0.20  | 0.03 | 1.6   | >0.05 |
| S. calcium                | 35 | 9.44    | 9.55    | 1.20↑ | 0.11  | 0.38  | 0.06 | 1.7   | >0.05 |
| Uric acid                 | 35 | 5.40    | 5.78    | 6.92↑ | 0.37  | 1.33  | 0.22 | 1.66  | >0.05 |

S. creatinine: Serum creatinine, S. calcium: Serum calcium, BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

Table 8: Group B effect of therapy on biochemical investigations

| Biochemical investigation | n  | Mean BT | Mean AT | %    | X    | SD  | SE  | t     | P   |
|----------------------------|----|---------|---------|------|------|-----|-----|-------|-----|
| Blood urea                | 31 | 22.16   | 20.48   | 7.57↓ | 1.67  | 4.17  | 0.75 | 2.24  | <0.05 |
| S. creatinine             | 31 | 1.01    | 1.02    | 0.63↑ | 0.06  | 0.15  | 0.03 | 0.23  | >0.05 |
| S. calcium                | 31 | 9.73    | 9.79    | 0.72↑ | 0.07  | 0.40  | 0.07 | 0.98  | >0.05 |
| Uric acid                 | 31 | 5.21    | 5.08    | 2.60↓ | 0.37  | 1.35  | 0.23 | 0.58  | >0.05 |

S. creatinine: Serum creatinine, S. calcium: Serum calcium, BT: Before treatment, AT: After treatment, SD: Standard deviation, SE: Standard error

Table 9: Overall effect of therapy on all symptoms of patients

| Groups | N  | Mean BT | Mean AT | BT-AT % | t   | P   |
|--------|----|---------|---------|---------|-----|-----|
| A      | 35 | 1.42    | 0.27    | 1.16    | 0.48 | <0.01 |
| B      | 31 | 1.71    | 0.45    | 1.26    | 2.79 | <0.05 |

BT: Before treatment, AT: After treatment

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मूत्रकुच्छ्र में वीरतरु के प्रभाव का चिकित्सकीय अध्ययन

बी. आर. पटेल, पी. पी. शर्मा

आयुर्वैदिक संहिताओं में वीरतरु का उपयोग मूत्रकुच्छ्र सोतोडुष्टि विकारों में जैसे कि मूत्रकुच्छ्र, मूत्रात्मत, अश्मरी तथा शर्करा आदि में निर्दिष्ट किया गया है। मूत्रकुच्छ्र बल्की व्याधि हैं। मूत्रप्रस्तुति के लक्षण तथा दाह की आशंका के साथ मूत्रकुच्छ्र को ज्ञात किया जाता है। आयुर्विज्ञान में मूत्रकुच्छ्र की हिस्सेदारीय व्याधि के साथ तुलना की जा सकती है, जिसमें मूत्रहस्तसंस्थान में व्याकरण इलाज कार्य करता है। विशेषतः बार बार दृष्टि योगस्तंभ लेने के बावजूद इस व्याधि में पूर्णता सफलता नहीं पाई जाती है तथा लंबे समय तक दृष्टि योगस्तंभ लेने से उनका रेजिस्ट्रेंस देखा जाता है। इससे बाहर का विवाद करते हुए वीरतरु का चिकित्सीय अध्ययन किया गया है। इस चिकित्सीय अध्ययन में मूत्रकुच्छ्र के रूपों को दो वर्गों में विभाजित किया गया जिसमें प्रथम वर्ग (ग्रुप 'ए') में वीरत्स्मूल क्राख और दूसरे वर्ग (ग्रुप 'ब') में पूर्णवामूल क्राख का प्रयोग किया गया है। ग्रुप 'ब' की अपेक्षा ग्रुप 'ए' में लक्षणिक उपशय अधिक मिला है।