Clinical Research

A comparative study of Kaishora Guggulu and Amrita Guggulu in the management of Utthana Vatarakta

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Abstract

Vatarakta is the major example of Vata vyadhi, caused due to avarana pathology. The scenario of Utthana Vatarakta occurred owing to the margavarana pathology, which can very well be correlated with atherosclerotic peripheral arterial disease. The literature enlists a number of Guggulu prayogas in the management of Vatarakta. An additional cavernous revise was indispensable to bring out the precise outcome of these products. Keeping these visions in mind, the particular comparative study was performed with Kaishora guggulu and Amrita guggulu, which are explained in the same context.

This is a single-blind comparative clinical study with a pre-test and post-test design, wherein a minimum of 30 patients of either sex, suffering from Utthana Vatarakta, in an age limit of 16 to 70 years, were selected and randomly categorized into two groups. The 15 patients of group A were treated with oral administration of Tab Kaishora guggulu 1 g thrice a day and the group B patients with Tab Amrita guggulu of the same dose pattern with anupana of lukewarm water. The therapeutic effect of the treatment was assessed in both the groups based on specific subjective and objective parameters. The results obtained were analyzed statistically in both the groups and the comparative effect was assessed using the unpaired “t”-test. In the present study, 80% of the patients from both the groups had madhumeha (Diabetes mellitus), shonita mada (Hypertension) or both. Fifty percent of the patients in group A and nearly 60% of the patients in group B, suffering from Utthana Vatarakta, had the habit of smoking. In both the groups, a statistically significant improvement was observed in all the criteria of assessment. The outcome of the study revealed an identical therapeutic efficacy of Kaishora guggulu and Amrita guggulu in Utthana Vatarakta. The use of Kaishora guggulu or Amrita guggulu as shanana Aushadhas was a perfect selection in the management of rakta margavaranajanya Utthana Vatarakta.

Key words: Utthana Vatarakta, Margavarana, Raktawahares, Atherosclerosis, Peripheral Vascular Diseases

Introduction

Ayurvedic texts judge Vata as the most significant in the midst of the tridoshas, due to its six-fold distinguishing features like spreading, quick action, vigor, capability to vitiate other doshas, autonomy, and the power to create the maximum number of diseases.¹ At the same time, it is also assumed that the life of living beings absolutely depends on Rakta.² Vatarakta is an illness where both vata and rakta are afflicted by distinct etiological factors.³ The occurrence of Vatarakta is also possible when the customary gati of the vata is hindered by the morbid kapha dosha and medas.⁴

The status of Utthana vatarakta is often compared with the atherosclerotic ischemic limb disease in the allied sciences due to the outstanding similarities. Atherosclerosis is a generalized phenomenon that can occur in any of the large- to medium-sized arteries. Atherosclerosis habitually does not present with any symptom until it brutally narrows an artery or blocks it completely. The type of artery and the location of the plaque vary from person to person. If either happens and blocks a blood vessel that feeds the heart, it can result in a heart attack. If it blocks the blood vessel that supplies blood to the brain, it results in a stroke. Furthermore, if the blood supply to the extremities is reduced, it can cause a complexity in walking and ultimately lead to gangrene. Peripheral arterial disease can impair physical health and
diminish the ability to walk. If left untreated, it is the leading cause of foot or leg amputation. A person with peripheral arterial disease has six to seven times greater risk of death from coronary artery disease, heart attack, and stroke than the rest of the population.[9]

The same thought has been highlighted in Ayurvedic literature under the designation of Margavarana. It is a widespread observable fact that ends up in a variety of disorders based on the site of the affliction. A reference of Margavarana involved in the pathogenesis is accessible in the contexts of Hridroga, Gulma, Vatavyadhi, Vatarakta, and so on. When the process of Margavarana takes place in the rakta marga due to the abnormal and excessive accumulation of morbid kapha and medas in the srotas, it ends up in the manifestation of Vatarakta.

Review of previous works done
Close to 37 studies have been conducted all over India on Vatarakta.[6-9] An analysis reveals that most of the studies were carried out by considering Vatarakta as gouty arthritis or rheumatoid arthritis. Very few studies have been performed considering Vatarakta as an ischemic limb. Even after the towering prevalence of the disease in the present population, very few research studies have been conducted in this regard, which mainly deal with the outcome of the Shodhana therapies. However, the results of these small numbers of studies are extremely promising.

As it is an Avaranajanya Vyadhi, different preparations with drugs having Srotosudhikaraka and Vyadhikara Hara Rasayana-properties like Guggulu are exclusively indicated in the management of Vatarakta. The herbal preparations like Kaisora guggulu and Amrita guggulu, consisting mainly of ingredients like Guggulu (Commiphora mukul), Triphala (Terminalia chebula Retz., Terminalia bellerica, Emblica officinalis), Guduchi (Tinospora cordifolia),[10] and so on, are said to be useful in curing the illness.[11]

Thus, getting immensely inspired by the above-mentioned data, the present study was carried out with a target to hit upon a better efficacious Shamana Oushada in stipulation of Margavarana Janya Vatarakta.

Aims and Objectives
To evaluate and compare the efficacy of Kaisora guggulu and Amrita guggulu in patients suffering from Utthana Vatarakta.

Materials and Methods

Source of the data
The patients who attended the OPD and IPD of the S.D.M. Ayurveda Hospital, Kuthpady, Udupi, Karnataka, during the period of September 2006 to August 2007, with signs and symptoms of Utthana Vatarakta, were screened. Among these, 30 patients who fulfilled the criteria of inclusion, mentioned a little later in the text, were included in the study. The selected patients were randomly categorized into two groups, with each group consisting of 15 patients.

Inclusion criteria
Patients within the age group of 16 – 70 years, presenting with Pratyatmaka Lakshana of Utthana Vatarakta and also with the symptoms of peripheral atherosclerotic disease were included in the study.

Exclusion criteria
Patients with severe toxicity, ulceration, progressive gangrenous changes, and suffering from diseases of immunological basis and syphilis were excluded from the study.

Investigations
Following are the investigations carried out on all 30 patients for the conduction of this study:
1. Hb%, ESR, RBS, lipid profile.
2. Doppler ultrasound in selected patients.

Design
The study was a single-blind, comparative, clinical study with a pre-test and post-test design.

Intervention
Group A: Fifteen patients with oral administration of Tab Kaishora guggulu in a dose of 1 g thrice a day.
Group B: Fifteen patients with oral administration of Tab Amrita guggulu in a dose of 1 g thrice a day. Anupana-lukewarm water.

The study had received prior approval from the Institutional Ethical Committee.

Assessment criteria
The assessment criteria is shown in Table 1.

Assessment of overall effect
Complete remission — 100% relief.
Marked improvement — reduction in the mean symptom score by 75 – 99% of the initial score.
Moderate remission — reduction in the mean symptom score by 50 – 74%.
Average remission — reduction in the mean symptom score by 25 – 49%.
Unchanged — reduction in the mean symptom score by < 24% of the initial score.

Observations
Of the 30 patients of Vatarakta studied in this research, the maximum number of patients in both the groups (nearly 40%) belonged to the age group of 51 – 60 years. Following this, the maximum number of patients was in the 61 – 70 years age group. Sixty-six percent of the patients of group A and 73% of the patients of group B were male. The majority of patients in group A (73%) as well as group B (86%) were Hindus, in the present study. Eighty percent of the patients of group A and 93% of the patients of group B were married persons. It was observed that 26% of the females in group A and 20% from group B, in this study, were housewives. Also, it was found that the largest category of patients in both the groups was engaged in other occupations. The study revealed that most of the patients in both the groups belonged to the middle and the rich socioeconomic status (70%).

The present study revealed that 20% of the patients from both the groups had Madhumeha and 16.6% had Shonita Mada (hypertension). The maximum number of patients (73 and 66%)
had the habit of taking a mixed diet. A dominance of Madhura Rasa in the diet was observed in most of the patients from both groups. Fifty percent of the patients of group A and nearly 60% of the patients in group B suffering from Utthana Vatarakta had the habit of smoking. In the present sample, all the patients in both the groups had Dvandvaja Praktiti. Also, in the present study, all the patients had Madhya Praktiti. Similarly, in the present sample of patients suffering from Santarpanjanya Vatarakta, more than 50% of the patients in both the groups had either Pravara or Madhya, Abhyavaharana, and Jarana Shakti. Of the 30 patients suffering from Vatarakta taken for the study, 70% of the patients had gradual onset of the disease, and in 30%, the onset was insidious. None of the patients had a sudden onset of illness.

### Results and Discussion

**Vatarakta** is a Vatavyadhi Prabheda. The illness is considered to be the finest illustration of an Avarana Vyadhi, as an opening from the etiopathogenesis to the complications, the illness follows the characteristic presentation of Avarana. Compared with the other Vatavyadhi, Vatarakta possesses a special place in the literature, due to its high prevalence in the society, increased incidence as age advances, step-wise succession, and so on.

From the overall view of the etiology, it is obvious and unambiguous that the precise etiological factors of Vata Dosha as well as Rakta Dhatu are accountable for the causation of illness. At the same time, an alternate form of Vatarakta also exists, which is the result of Kapha-medo Avarana in Rakta Marga. Whatever be the grounds, an obstruction in the path of Rakta Dhatu is the core pathology of the disease.

Of the 30 patients of Vatarakta studied in this research, the maximum number of patients in both the groups belonged to the age group of 51–60 years and 61–70 years, respectively. It is an established fact that atherosclerosis usually becomes symptomatic during the fifth or sixth decade of life. The present observation of 70% of the patients between these two age groups corroborates the same. The illness definitely has a predilection for the male sex compared to the female sex, till the menopausal age. Sixty-six percent of the patients of group A and 73% of the patients of group B were males. This shows the increased incidence of the disease in males. The study revealed that most of the patients in both the groups belonged to the middle and rich socioeconomic status. Inactive life fashion is ordinary among this category of people. Sedentary lifestyle has a clear-cut role in the causation of the illness. Similarly, the sample indicates the prevalence of the illness in middle and higher class people. Apart from Vatarakta, the common disorders were aberration of medas, seen as Madhunada, Shonita Mada (hypertension), and Hridroga. In agreement with the etiology and basic pathology that is common in these diseases, they tend to coexist in patients, as in the present study, revealing the same tendency, wherein 80% of the patients from both the groups had Madhunada, Shonita Mada or both.

The dominance of the Madhura Rasa in the diet of most of the patients from both groups once again confirms the role of the Kapha- and Meda-vitiating factors in the production of the illness. The Abhyavaharana or Jarana Shakti of the persons indicates the possibility of Santarpana or otherwise: moderate or good Abhyavaharana Shakti, and Jarana Shakti indicates the high probability of indulgence in Santarpana, leading to disease manifestation. Similarly, in the present sample of patients suffering from Santarpanjanya Vatarakta, more than 80% of the patients in both groups had either Pravara or Madhya, Abhyavaharana, and Jarana Shakti. Smoking is one among the most established risk factors of atherosclerosis. Fifty percent of the patients of group A and nearly 60% of the patients in group B suffering from Utthana Vatarakta had the habit of smoking.

Patients of both groups, A and B, showed marked remission of

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**Table 1: Assessment criteria**

| Subjective criteria | Scoring |
|---------------------|---------|
| Pain                |         |
| No pain             | 0       |
| Mild pain           | 1       |
| Moderate pain       | 2       |
| Severe pain         | 3       |
| Burning sensation   |         |
| No burning sensation| 0       |
| Mild burning sensation| 1     |
| Moderate burning sensation| 2   |
| Severe burning sensation| 3   |
| Malaise             |         |
| No malaise          | 0       |
| Mild malaise        | 1       |
| Moderate malaise    | 2       |
| Sever malaise       | 3       |
| Objective criteria  |         |
| **Tenderness**      |         |
| No tenderness       | 0       |
| Patient complains of pain | 1   |
| Patient complains of pain and winces | 2 |
| Patient complains of pain and withdraws | 3 |
| **Edema**           |         |
| No swelling         | 0       |
| Slight swelling     | 1       |
| Moderate swelling   | 2       |
| Gross swelling      | 3       |
| **Local color changes in the skin** | |
| No color change     | 0       |
| Mild color change   | 1       |
| Moderate color change| 2    |
| Severe color change | 3       |
| **Walking ability** |         |
| Walks easily        | 0       |
| With mild difficulty| 1       |
| With moderate difficulty| 2    |
| With marked difficulty| 3   |
| Impossible          | 4       |
| **Peripheral pulses** |       |
| Absent              | 3       |
| Feeble              | 2       |
| Less volume         | 1       |
| Full bounding       | 0       |
Table 2: Effect of therapy on the subjective and objective parameters in patients of group A

| Parameter              | Mean score | Mean (diff) | % of relief | SD  | SEM  | 't'  | P value |
|------------------------|------------|-------------|-------------|-----|------|------|---------|
| BT                     | AT         |             |             |     |      |      |         |
| Pain                   | 1.40       | 0.4667      | 0.93        | 66.6| 0.46 | 0.12 | 7.89    | < 0.001 |
| Burning sensation      | 1.20       | 0.40        | 0.80        | 66.6| 0.41 | 0.11 | 7.49    | < 0.001 |
| Malaise                | 1.13       | 0.27        | 0.87        | 76.52| 0.35 | 0.09 | 9.54    | < 0.001 |
| Tenderness             | 1.00       | 0.20        | 0.80        | 80  | 0.41 | 0.11 | 7.48    | < 0.001 |
| Edema                  | 1.07       | 0.53        | 0.53        | 49.95| 0.52 | 0.13 | 4.00    | < 0.001 |
| Local color change     | 1.07       | 0.93        | 0.13        | 12.46| 0.35 | 0.09 | 1.47    | 0.164   |
| Walking ability        | 1.47       | 0.80        | 0.67        | 45.45| 0.49 | 0.13 | 5.59    | 0.001   |
| Peripheral pulses      | 1.40       | 1.00        | 0.40        | 28.57| 0.51 | 0.13 | 3.06    | 0.009   |

BT - Before treatment, AT - After treatment, SE - Standard error, SD - Standard deviation, SEM - Standard error of mean

Table 3: Effect of therapy on subjective and objective parameters in patients of group B

| Parameter              | Mean score | Mean (diff) | % of relief | SD  | SEM  | 't'  | P value |
|------------------------|------------|-------------|-------------|-----|------|------|---------|
| BT                     | AT         |             |             |     |      |      |         |
| Pain                   | 1.27       | 0.47        | 0.80        | 63.14| 0.41 | 0.11 | 7.48    | < 0.001 |
| Burning sensation      | 1.20       | 0.53        | 0.67        | 55.58| 0.49 | 0.13 | 5.29    | < 0.001 |
| Malaise                | 1.00       | 0.27        | 0.73        | 73.3 | 0.46 | 0.12 | 6.21    | < 0.001 |
| Tenderness             | 1.00       | 0.27        | 0.73        | 73.3 | 0.46 | 0.12 | 6.21    | < 0.001 |
| Edema                  | 1.13       | 0.60        | 0.53        | 47  | 0.52 | 0.13 | 4.00    | 0.001   |
| Local color change     | 1.00       | 1.00        | 0.00        | -   | -    | -    | -       |         |
| Walking ability        | 1.33       | 0.73        | 0.60        | 45  | 0.51 | 0.13 | 4.58    | < 0.001 |
| Peripheral pulses      | 1.20       | 1.00        | 0.20        | 16.65| 0.41 | 0.11 | 1.87    | 0.083   |

BT - Before treatment, AT - After treatment, SE - Standard error, SD - Standard deviation, SEM - Standard error of mean

Table 4: Comparison of the effect of treatment in both groups using the unpaired t-test

| Parameter              | Group A (K guggulu) | Group B (A guggulu) | 't'  | P value | Remarks |
|------------------------|---------------------|---------------------|------|---------|---------|
| Mean ± SEM             | Mean ± SEM          |                     |      |         |         |
| Pain                   | 0.93 ± 0.12         | 0.80 ± 0.11         | 0.84 | 0.41    | NS      |
| Burning sensation      | 0.80 ± 0.11         | 0.53 ± 0.13         | 1.56 | 0.13    | NS      |
| Malaise                | 0.87 ± 0.09         | 0.73 ± 0.12         | 0.89 | 0.38    | NS      |
| Tenderness             | 0.80 ± 0.11         | 0.73 ± 0.12         | 0.42 | 0.68    | NS      |
| Edema                  | 0.53 ± 0.13         | 0.53 ± 0.13         | 0.00 | 1.00    | NS      |
| Local color change     | 0.13 ± 0.09         | 0.00 ± 0.00         | 1.47 | 0.15    | NS      |
| Walking ability        | 0.67 ± 0.13         | 0.60 ± 0.13         | 0.37 | 0.72    | NS      |
| Peripheral pulses      | 0.27 ± 0.12         | 0.20 ± 0.11         | 0.42 | 0.68    | NS      |

BT - Before treatment, AT - After treatment, SE - Standard error, SD - Standard deviation, SEM - Standard error of mean

the symptom of pain after intervention. The results are shown in Tables 2-4. The comparison of effect of therapy is shown in Figures 1-4. In group A, the initial mean score was 1.40, which came down to 0.93 after treatment, exhibiting a statistically, highly significant improvement, with P < 0.001 and about 66.6% relief. At the same time, group B patients also showed marked improvement, with reduction in the initial mean score of 1.26 to 0.46 after intervention. This was statistically, highly significant, with P < 0.001 and about 63.14% relief. When compared, through the unpaired ‘t’-test, the difference between the two groups was not significant statistically. Burning sensation was one of the cardinal symptoms of Vatarakta, which was relieved by 66% in group A patients and by 55% in group B patients. This improvement, when compared using the unpaired ‘t’-test, did not show any difference between the two groups. Seventy-six percent improvement was observed in the symptom of ‘malaise’ in group A patients, while Group B patients showed 73% relief. This improvement after the treatment was found to be highly significant (P < 0.001) in both the groups as per the paired ‘t’-test. When given for the unpaired ‘t’-test, this difference was not statistically significant. It showed that Kaishora guggulu and Amrita guggulu were equally helpful in managing the symptom of malaise.

Tenderness is another symptom of Vatarakta. In group A, the initial mean score of the patients for tenderness was 1.00, which was reduced to 0.20 after the treatment. In group B, the initial mean score of the patients for tenderness was 1.00, which was reduced to 0.26. The improvement was 80% and 73%, respectively. This improvement was statistically significant in both groups. The unpaired ‘t’-test showed equal efficacy of Kaishora guggulu and Amrita guggulu in this regard as the
difference was not statistically significant. In case of the symptom of edema, the change that occurred with the treatment in both groups was greater than what could be expected by chance; there was a statistically significant change ($P < 0.010$), as assessed by the paired "t"-test. As per the unpaired "t"-test, this difference was not a statistically significant one. Thus, Kaishora guggulu and Amrita guggulu were equally effective in managing the symptom of edema. Patients treated with Kaishora guggulu in group A and with Amrita guggulu in group B had no significant difference in local color changes. The difference obtained in group A was not statistically significant ($P = 0.164$). In group B patients, the initial score of 1.00 remained the same even after treatment. In unpaired "t"-test, the difference mean showed by group A was 0.133 against the 0.000 difference in the mean of group A. However, this change could not be concluded because of the higher efficacy of Kaishora guggulu on local color change. Forty-five percent improvement was observed in the score of walking ability in group A; 1.467 was the initial mean score recorded in the 15 patients of Utthana Vatarakta. This was brought down to 0.800 after the administration of Kaishora guggulu. In the second group, the initial mean score was 1.33, which was reduced to 0.733, showing 45% improvement. This improvement after the treatment was found to be highly significant ($P < 0.001$) as per the paired "t"-test. The unpaired "t"-test showed equal efficacy of both the yogas in dealing with the same. The mean initial score of peripheral pulses was 1.400 before the treatment, in patients of Utthana Vatarakta of group A. This initial mean score came down to 1.00 after the treatment. The improvement to the tune of 28% was significant ($P = 0.009$), as revealed by the paired "t"-test. In group B, the initial mean score was 1.200, which reduced to 0.200 after the intervention. This change in group B was not statistically significant as the $P$-value suggested $P = 0.082$. However, this higher response was not statistically significant according to the unpaired "t"-test.

The overall assessment in both the groups revealed equal efficacy of both the yogas in managing the illness. Sixty-six percent of the patients from both the groups showed an average remission of symptoms and signs. Moderate remission was observed in nearly 13% of the patients. None of the patients from both the groups showed complete remission or marked improvement. In the remaining 20% of the patients in each group, the tune of improvement was > 24%, which came under the unchanged category.

All the 30 patients taken for the study had some or the other form of improvement in the symptoms of Vatarakta.

In short, when the overall assessment was performed, both the groups did not show any remarkable difference in the final results. Both Kaishora guggulu and Amrita guggulu were equally effective in the management of Margavaranaajanya Vatarakta. However, an individual analysis of the symptoms assessed in both groups by the paired "t"-test showed minor differences. Fifteen patients of group A treated with Kaishora guggulu showed relatively marginal improvement in almost all the symptoms and signs of Utthana Vatarakta. Even then, these differences were not significant from the statistical view point. Thus, these insignificant improvements observed in group A could not be concluded as the better efficacy of Kaishora guggulu in treating the illness of Santarpama Nidanajanya Margavaranaajanya Utthana Vatarakta. Here, the marginal difference
Probable mode of action
Obstruction in the Rakta Vaha Srotas causing hindrance to the normal movement of the Vata Dosha, is the root pathology behind the manifestation of the illness Vatarakta. This obstruction is established by the arterial color Doppler study.

In case of Santarpana Nidana Janya Vatarakta, the approach toward the management varies. Here, the objective of the entire treatment is to eliminate the Margavarana that has already occurred and is progressing in the Rakta Vaha Srotas. Therefore, in the initial stage of handling, the administration of Snehana and Bhruhmana are contraindicated.

In this situation, one has to go for Kapha-Meda Kshapana Chikitsa. Practically, this is implemented by methods of physical exercises, Virechana, gomutra-shilajatu-guggulu prayoga, and so on. After clearing the root of Rakta and Vata, the general line of management of Vatarakta is useful. Kaishora guggulu and Amrita guggulu are the two significant yogas taken from Bhaishajya Ratanvalli and are indicated in Vatarakta Chikitsa. The combination and properties of the drugs in both the preparations shows the efficiency of the yogas in clearing the Margavarana. In both the preparations, Guggulu, Gudoochi, and Triphala are the chief ingredients.

Guggulu is one extraordinary drug that possesses Anabhidhyanidhi, Snigdha, and Srot Shuldhikaraka actions. It is considered as the best drug for the management of Meda Avrata Anila. It is the best drug that can be administered in this condition, as it is proved that it has an optimistic outcome in negating the incriminatory action of the morbid Kapha Dosha as well as the Medo Dhatu.

Guduchi is the drug of choice in Vatarakta. It acts as Vyaadipratyeeeka and is a magnificent Rasayana. Triphala is well known for its Rooshana and Kapha Medo Hara effects. All the other ingredients of the yogas also work in the same pattern.

Apart from these, the recent experimental studies performed on these drugs also reveal the same; that the ingredients in both the yogas are highly efficacious in treating the state of hyperlipidemia. These points are good enough to support the selection of these two yogas for the present comparative study in the management of Vatarakta.

The Rooshana property of drugs like Danti (Baliospermum montanum), Triphala (Terminalia chebula Retz., Terminalia bellerica, Emblica officinalis), Vidanga (Embelia ribes), and Guggulu (Commiphora mukul) are believed to act on abnormally accumulated Kattha Dosha and Medas. Tikshna and ushna drugs like Pipalli, Shunthi, Maricha, Vidanga, Danti, and so on, are present in Kaishora guggulu as well as Amrita Guggulu, and Guggulu is stated to have a positive action on Sroto vidhishobhana. The same is reflected in the results, as there is a definite improvement in the walking ability and marginal improvement in peripheral pulses. There is clear-cut evidence for improvement in circulation. Improvement in circulation means reduction in Margavarana, which in turn leads to reduced morbidity of Vata Dosha.

Apart from this, ingredients like Guggulu definitely have an action on the pacification of Vata Dosha too. Therefore, the average positive response obtained in a major percentage of patients taken for the study can be well understood as remission of Margavarana to a certain level and also due to release in the obstruction of Vata Dosha.

The average remission of symptoms observed in the results of both the groups definitely shows a marginal improvement in the circulation and a resultant pacification of the morbid Vata Dosha to a certain extent following the medication. Reduction in the chief presenting symptoms like pain, burning sensation, and malaise also indicates reduction in the morbidity of Vata Dosha.

Marginal improvement in the symptom of the local color change is suggestive of reduction in the severity of the morbidity of Rakta Dhatu. The changes seen after the intervention in both the groups are definitely satisfactory. The therapeutic efficacy of Kaishora guggulu and Amrita guggulu in Utthana Vatarakta has proved to be similar. However, the ultimate aim of complete remission of Margavarana and total relief from the symptoms has not yet been achieved. In short, of course, the results are constructive, but not complete.

Conclusion

The entire notion of Margavarana can be well correlated to the pathology of atherosclerosis, and the state of Utthana Vatarakta to that of Peripheral arterial disease in the modern dialect. Results show noticeable improvement in the symptoms and signs of Utthana Vatarakta after the intervention in both the groups. The outcome of the study reveals the identical therapeutic efficacy of Kaishora guggulu and Amrita guggulu in Utthana Vatarakta. The use of Kaishora guggulu or Amrita guggulu as Shamana Oushadhas is a perfect selection for the management of Rakta Margavarana janya Utthana Vatarakta.

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Anju, et al.: Kaishora Guggulu and Amrita Guggulu in Utthana Vatarakta

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