Original Research Paper

Volume - 13 | Issue - 05 | May - 2023 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Ayurveda

CLINICAL EVALUATION OF SHWETARKA (CALOTROPIS GIGANTEA) ON VEDANA (PAIN) WITH SPECIAL REFERENCE TO SHULA (SEVERE SHARP PAIN) AND GRAHA (STIFFNESS)

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ABSTRACT **Introduction:** Pain or vedana is the most common problem today. Vedana is one of the major symptoms found in vatavyadhi. Pain is described as a feeling of distress, suffering or agony, caused by stimulation of specialized nerve endings. Approximately 30% of the world's population suffers from pain. To get relief from this pain, an analgesic or pain killer is needed. In Ayurvedic texts many types of vedana are described and though Shwetark is used for Dental aches and Ear pains, it will help in relieving vedana of Shula (Severe sharp pain) and Graha (Stiffness) and hence Shwetark can be mentioned as pain killer or analgesic. Pain can be considered as a dominant disease and personal as well as social life can be affected due to it. **Aim:** To assess the effect of Shwetarka (Calotropis gigantea) on vedana (pain) with special reference to shula (severe sharp pain) and graha (stiffness) **Materials and Methods:** A total of 49 patients with complaints of pain, were registered and Shwetarka powder was given 2 grams thrice a day with lukewarm water for 28 days. **Results and Conclusions:** Out of the 43 patients under study 74.09% of patients showed recovery, it means that, they were relieved of pain. The drug has shown better effect on patients of Ekangavata with short history.

KEYWORDS : Pain, vedana, Vatavyadhi, Shwetarka

Introduction

The world is changing rapidly. Everyone is supposed to run to keep the pace with the world. In this race, pain or vedana is the most common problem today. Pain is described as unpleasant feeling of distress, suffering or agony, which could be sensory or emotional, caused by tissue damage or due to stimulation of special nerve endings [1]. Approximately 30% of the world's population suffers from pain [2] with a marked higher prevalence in females.

Ayurveda has mentioned in the Samhitas that any kind of pain produced in body is due to Vata Dosha. Different type of pain sensation has been described as the hyper functional state of Vata dosha, which is very similar to the description of modern science regarding the various characters of pain depending upon pathology [3]. The hyper functional state of Vata dosha is called as Vatavriddhi and it leads to Vatavyadhi (Rheumatic diseases) [4]. Vatavyadhi include the five diseases-Sarvangavata (Ache in all body parts) [5], Ekangvata (Ache in one body part or limbs) [6], Amavata (Rheumatoid Arthritis) [7], Gridhrasi (Sciatica) [8] and Sandhivata (osteoarthritis) [9], in which pain is the major complaint. In Ayurvedic texts many types of vedana are described [10]. Shula or severe sharp pain and graha or stiffness are two of them, mostly found in the above five diseases.

To get relief from this vedana or pain, an analgesic or pain killer is needed. There are lists of drugs mentioned in Ayurvedic text termed as Vatahar aushadhi, but a drug which will give hundred per cent relief from pain is needed.

Shwetark [11] can be mentioned as pain killer or analgesic. Several references in Ayurvedic text were found. Acharya Charak described Shwetarka as useful in Urustambha (Pain in thigh) [12], Acharya Sushrut described that Shwetarka relives pain in ear [13], and dental aches could be cured by Shwetarka according to AcharyaVagbhatta [14]. With all these reasons in mind, 'Clinical evaluation of Shwetarka on Vedana with Special Reference to shula and graha' was chosen as the topic of research.

Every effort has been made to present this work complete in all respects. This study will surely give a pain killer, which will help Ayurvedic practitioners to reach new heights or at least stand in the same place in this ever-changing world.

Aims and objectives

The present study was carried out to assess the efficacy of Shwetarka (Calotropis gigantean) on vedana (pain) with special reference to shula (severe sharp pain) and graha (stiffness).

Materials & Methods

A total number of 49 patients were registered under this research work. The patients were selected without any prejudice, depending upon the presence of pain with history of the five diseases, Sarvangavata, Ekangvata, Amavata, Gridhrasi and Sandhivata. Patients having complaint of generalized body ache, pain in one or many joints, back ache, low back ache, pain in hands and pain in legs were considered which can be described under shula and graha, irrespective of age, sex, occupation, etc. The patients were selected from the OPD of Department of Kayachikitsa in Shree Ayurveda College and Hospital, Nagpur, for the clinical trial. The ethical clearance was obtained from Institutional Ethics Committee. Everything regarding the treatment was explained to the patients and written consent was taken from the patients. A detailed clinical history was taken in the clinical research proforma based on modern and Ayurvedic parameters.

The study was conducted as a randomized, single-blind clinical trial. Out of the 49 patients, 43 patients could complete the study and 06 patients discontinued the treatment.

Inclusion criteria

- Patients between 20 to 70 years of age
- Patients with complaints of pain due to various diseases like Sarvangavata, Ekangvata, Amavata, Gridhrasi and Sandhivata.

Exclusion criteria

- Patients suffering from uncontrolled diabetes, joint pathologies other than Sarvangavata, Ekangvata, Amavata, Gridhrasi and Sandhivata (psoriatic arthritis, gouty arthritis, systemic lupus erythematosis, bone TB), having other serious systemic disorders.
- Patients with any anatomical deformity.

Medicine preparation

In this work, Shwetark was used as vedanahara or painkiller. Only roots of these plants were taken into consideration. These roots were washed with tap water and then kept in shade for drying. The outer thin covering of these dry roots was peeled off. The outer thick part or the root bark was taken out and finely powdered. Packets of 2 grams were prepared.

Dose and duration

The powder of root bark of Shwetarka was given in the dosage of 2 grams thrice a day with lukewarm water for a period of 28 days. Each follow up was done after every 7 days and recorded.

Figure 1: Plant of Shwetark (Calotropis gigantea) [15]

The plant is found in almost all over India. The part used of this plant is root or rootbark.

Figure 2: Roots of Shwetark – Calatropis Gigantea [16]

Criteria for assessment

Subjective criteria were taken into account. Signs and symptoms were provided with scoring; depending upon the severity and then it is assessed before and after treatment. Total improvement was categorized as follows:

No pain or pain absent - 0
Mild or intermittent pain - 1
Moderate pain - 2 and
Severe pain - 3

A standard proforma or case paper was prepared to note all the above said things.

Assessment of overall effect of therapy
The total effect of therapy was assessed considering overall improvement in sign and symptoms as per the criteria given below:

Cured or relieved of pain: 100% relief
Improvement: >71-< 99% relief
Mild improvement: >31-< 70% relief
Unchanged: 30% and < 30% relief in signs and symptoms.

Results

This research work, entitled 'Clinical evaluation of Shwetarka (Calotropis gigantea) on vedana (pain) with special reference to shula (severe sharp pain) and graha (stiffness)' was conducted on a total number of 49 patients. Out of these, 43 patients completed the study and 06 patients discontinued the treatment.

Pain was observed in all 100% of patients. Shula or severe sharp pain was found in 67.5% and graha or stiffness in 65% of patients and it was the chief complaint. Maximum, that is, 65.12% of the patients were female and 51.17% belonged to age group 20-40 years.

Figure 3: Distribution of patients according to Diseases

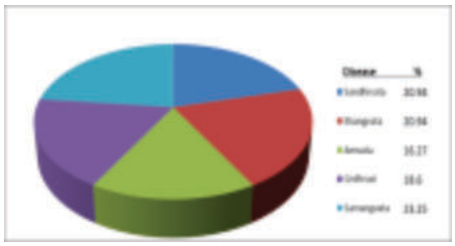


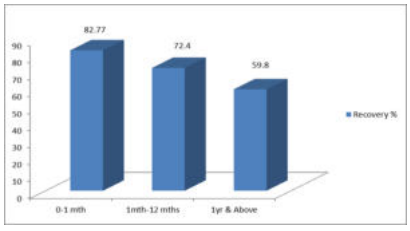
Table 1: Distribution of patients according to *prakriti*

Sr. No	*Prakriti*	No.of Patients	Percentage
1.	*Vataj*	5	11.63
2.	*Pittaj*	0	0
3.	*Kaphaj*	1	2.33
4.	*VataPittaj*	10	23.26
5.	*VataKaphaj*	16	37.2
6.	*Pitta Kaphaj*	11	25.58
7.	*Tridoshaj*	0	0

Table 2: Recovery Percentage with Reference to Diseases

Sr.No	Diseases	Recovery %
1.	Sarvangvata	79.36
2.	Ekangvata	80.66
3.	Amavata	69.8
4.	Grdhrasi	65.49
5.	Sandhivata	73.37

Figure 4: Recovery Percentage with Reference to Duration of Illness



Statistical analysis is as follows -
The obtained results were analysed and 'Z' value was calculated as 11.2986 and 'p' value is less than 0.001 P < 0.001.

Discussion

Patients with vedana in this work, were grouped under five diseases. These five groups were made according to diseases:

I] Sarvangvata (Ache in all body parts) - Vata gets aggravated all over the body with fluttering & breaking pain. The patient complains of different types of pain and cracking sound in the joints [17].

II] Ekangvata (Ache in one body part or limb) - When the aggravated vayu affects only one part or one limb of the body, then pain is seen in that part or limb, it is termed as Ekangvata [18].

III] Amavata (Rheumatoid Arthritis) - In this disease, as a result of indigestion due to bad eating habits, loss of exercise, etc., the rasa or digestive end product is not properly formed. This is called ama and it accumulates in the body and causes pain and swelling in the joints of hand, legs, head, ankle, sacro-iliac joint, knee and thigh [19].

IV] Gridhrasi (Sciatica) - Gridhrasi is caused by the aggravated vayu as well as kapha. This aggravated vayu causes graha (stiffness), toda (piercing pain), immobility and frequent spasms in the region beginning from sphic (buttock), lumber region, back, thighs, calf region and legs [20].

V] Sandhivata (osteoarthritis) - If vata gets aggravated in all joints of the body then there will be swelling in the joints and a feeling like fluid collection in the joints. Flexion and extension of joints become painful and difficult [21].

As per Ayurvedic terminology, Shwetark possess following properties [22],

Guna (quality)- Laghu (light), Ruksha (dry), Tikshna (strong)
Rasa- Katu (pungent), Tikta (bitter)
Vipaka - Katu
Virya- Ushna

It is Kaphavatashmaka, which acts as Vedanasthpan (analgesic) and Shothahara (anti-inflammatory), Vranashodhan (wound healer),

Kushthaghna (helps in healing skin diseases) and Jantughna (Kills germs).

Calotropis gigantea is traditionally used medicinal plant. The biological Source or the plant consist of dried flowers, leaves, latex, stem bark, root and barks of root.

It belongs to the family Asclepiadaceae, and it show activities such as antipyretic activity, antioxidant activity, antimicrobial activity, wound healing activity, antidiarrhoeal activity, sedative, anti-flatulence activity and anthelmintic activity. It acts as astringent, tonic and action is seen on stomach ache, leprosy, toothache and cholera [23].

The Chemical constituents of roots of Calotropis gigantea are calotropbenzofuranon [aromatic product], calotropisesquiterpenol, Calotropnaphthalene [naphthalenederivative], calotropisesterterpenol [terpene derivatives] and sucrose. The Chemical Constituents of the root bark of Calotropis gigantea contains β-amyrin, two isomeric crystalline alcohols, giganteol and isogiganteol [24].

The Pharmacological activities of Calotropis gigantea are described as follows

The analgesic activity (CNS activity) of an alcoholic extract of peeled roots, in albino rats was tested. Analgesic activity was observed in the acetic acid induced writing and Eddy's hot plate method. Oral dose of the extract of 250 and 500 mg/kg body weight was given [25]. Hence Shwetark was used as pain killer in this study.

Conclusions

- Out of the 43 patients under study 74.09% of patients showed recovery i.e. they were relieved of pain.
- The result obtained is significant, as per statistical point of view.
- No side effect of the medicine was seen in a total number of 43 patients.
- The recovery percentage of patients with a small duration of complaints is higher than that with a long duration of complaints.

Conflicts of interest

There are no conflicts of interest.

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