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Therapeutic effectiveness of Amukkara Kizhangu Pattru for low back pain

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ABSTRACT

Withania somnifera, Dunal (Solanaceae) has long been used as an herb in Siddha and other indigenous medicine and has received intense attention in recent years for its analgesic, anti-inflammatory, and chemopreventive properties. The present study focuses on the effect of the fresh root of *W. somnifera* in the management of pain in degenerative disorders of the lumbar region (lower back). A clinical trial was conducted with 20 samples and they were selected on the basis of inclusion and exclusion criteria. The fresh root of amukkura kizangu (*Withania somnifera*) is pulverized and gomiyam (Cow urine) is added to it. This medley is heated in woodfire and applied for 12 consecutive days in the region of pain. As amukkura possesses both anti-inflammatory and analgesic activity, application of herbal poultice on the painful area of the skin works by the mechanism of transdermal route of absorption. The pain was assessed before and after the study using back pain functional scale (BPFS). Significant changes in the score were observed which indicates a dramatic incline from a severity score of 20 – 30 to a better score of 35-50 out of total score 60. Thus amukkura kizangu pattru (poultice) was found to be more effective in management of pain in degenerative disorders (Arthritis) of lumbar region.

Keywords— *Withania somnifera*, Cow urine, Poultice, Anti-inflammatory, Analgesic, Degenerative disorder

1. INTRODUCTION

Ashwagandha^[1] (*Withania somnifera*, fam. Solanaceae) is commonly known as “Indian Winter cherry” or “Indian Ginseng”. It is one of the most important herbs in the traditional system of medicine in India. It is an ingredient in many formulations prescribed for a variety of musculoskeletal conditions (e.g., arthritis, rheumatism) and as a general tonic to increase energy, improve overall health^[2,3]. Many pharmacological studies have been conducted to investigate the properties of ashwagandha in an attempt to authenticate its use as a multi-purpose medicinal agent. The biologically active chemical constituents are alkaloids (isopellertierine, anferine), steroidal lactones (withanolides, withaferins), saponins containing an additional acyl group (sitoindoside VII and VIII), and withanoloides with glucose at carbon 27 (sitonidoside XI and X). Cow urine^[4, 5] is believed to have therapeutic value and used in many drug formulations. Essentially, cow urine is used as disinfectant and for purification with an approximate shelf life of around 5 years, this has proved to be the most effective natural antiseptic, disinfectant and possess anti-inflammatory^[6] and analgesic^[7] activity. Thus, it strengthens the fact that cow’s urine is not a toxic effluent as 95% of its content being water, 2.5% urea and the remaining 2.5%, a mixture of minerals, salts, hormones and enzymes^[8, 9]. The pattru (poultice)^[10] in Siddha is obtained from plant extracts or by grinding raw drugs with or without processing^[11] them and are either heated or not heated, is made into a thick paste and applied, or pasted on the affected area^[12,13]. The main aim of the study is to evaluate the efficacy of amukkura kizhangu pattru in the management of low back pain^[14] and review the ideas mentioned in ancient siddha literature.

1.1 Materials and Methods

1.1.1 Materials used

- Fresh amukkura kizhangu
- Cow urine

1.1.2 Method: Fresh amukkara root is grinded with cow urine and subjected to heat on a wood fire. This paste is applied in lumbar region depending upon the intensity of pain/body proportion and kept for the duration of 30 minutes/day. The procedure is carried out for 12 consecutive days. This study was approved by Institutional Ethical Committee (IEC) with reference ID: STSH180268.

INTENSITY OF PAIN / BODY PROPORTION (GRADE)	AMOUNT OF KIZANGU (gram)	COW URINE (ml)
MILD	5g	50ml
MODERATE	15g	75ml
SEVERE	25g	100ml

1.1.3 Internal medicine

- Amukkurachooranam- 1gm
- Sanguparpam -100mg
- Arumugachendooram- 100mg
- Combination with milk twice a day.

1.2 Selection criteria

1.2.1 Inclusion criteria

- AGE: 18 to 70 years.
- Both male and female.
- Subject with acute to moderate low back pain.
- Subject with or without radiating pain/tingling pain.
- Subject with numbness.
- H/O Diabetes mellitus (<400 mg/ dl)
- H/O Hypertension (<150/90 mm hg)

1.2.2 Exclusion criteria

- H/O Uncontrolled diabetes mellitus (>400 mg/ dl)
- H/O Hypertension (150/90mmhg)
- Any H/O Skin allergy
- H/O Any congenital anomaly
- H/O Fracture within 1 year
- H/O TB Spine
- H/O Tumor in the spine
- H/O Congestive cardiac failure, Coronary artery disease
- H/O Immunosuppressive diseases infectious diseases
- H/O Convulsion and others.

1.3 Mechanism of absorption of poultice

Applying herbal poultices to the painful area of the skin absorbs the medicinal benefits of the substance almost immediately. In the skin, Mostly drug absorption is transcellular [15, 16, 17]. It is unlikely that noticeable absorption occurs between cells or through sweat pores and hair follicles. It is a passive diffusion process, the magnitude of which will depend on the integrity and efficacy of the epidermal barrier but which will be influenced by the drug itself. Drugs with low molecular weight (below 800 daltons) with a high water and lipid solubility show the greatest penetration. Hydration of the stratum corneum^[18,19] occluding the epidermis increases its water content, enhancing drug absorption.

Withania somnifera can inhibit Cyclooxygenase (COX) ^[20], the enzyme responsible for the formation of important biological mediators of inflammatory and anaphylactic reactions. Pharmacological inhibition of COX can provide relief from the symptoms of inflammation and pain ^[21]. When anti-inflammatory drugs are taken orally they work by blocking the effect of chemicals called cyclooxygenase (COX) enzymes. COX enzymes help in the production of prostaglandins. Some prostaglandins are involved in the production of pain and inflammation at site of injury or damage. Reduction in prostaglandin production reduces pain and inflammation. Topical anti-inflammatories work in the same way, but instead of having effect all over the body, it works locally on the area of application.

2. RESULT

Results were observed using Back pain functional scale ^[22]. Based on scoring in pain scale the level of pain is assessed. In this study, patients treated only with internal medicine depicted a slight incline in score/ slight decline in pain and patients treated along with amukkara kizhangu patru scored a better result with dwindle of pain. The anti- inflammatory and analgesic effect of amukkara kizhangu patru helps in reduction of pain through transdermal route of absorption and it works locally on the area of application. Absorption takes place through the skin and moves deeper into area of inflammation. By this way it relieves pain and reduce swelling of affected joints and muscles.

3. DISCUSSION

Low back pain is commonly due to degeneration, osteophytic changes and due to weight bearing stresses. The clinical study on low back pain was done 20 samples of both male and female cases of varying age groups were selected under the supervision of professor, reader, and lecturer and treated in In and out patient ward for study. All the samples were diagnosed clinically as per symptoms, history, envagaitervu, naadi and other siddha method of diagnostics were done and admitted in the ward. Among this 10 patients were treated with the trial drug and other 10 patients were treated along with internal medicine. The chemical constituent in amukkara like withanolide, withaferin A and other compounds possess anti-inflammatory and analgesic activity. Withania inhibits the COX enzyme which is responsible for the inflammatory and anaphylactic reaction. COX enzymes help in the production of prostaglandins. Some prostaglandins are involved in the production of pain and inflammation at site of injury or damage. Reduction in prostaglandin production reduces pain and inflammation. When anti-inflammatory drugs are taken orally they work by blocking the effect of chemicals called cyclooxygenase (COX) enzymes. Topical anti-inflammatories work in the same way, but instead of having effect all over the body, it works locally on the area of application. Samples treated with internal medicine + poultice disclose a better prognosis than treated alone with poultice. These results build on the evidence of literature is verified.

4. CONCLUSION

The trial drug had adequate pharmacological actions. It is cost effective, simple to prepare and free from side effects. Further follow up studies can be carried out for degenerative disorders of all the joints in the management of pain. As it possess anti-inflammatory and analgesic activity, low back pain due to various causes can be managed with Amukkara kizangu patturu and it is more effective when administered along with internal medicine.

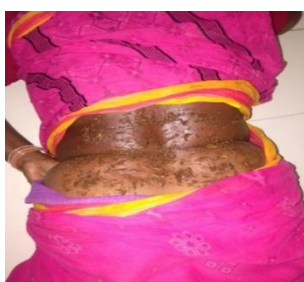


Fig. 1: Application of poultice- sample 1 Fig. 2: Application of poultice- sample 2

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