The effect of Yashtimadhu ointment on sadyovrana – an experimental study.

Abhijeet Patil1*, Pragati Kasat2, Rajesh Gundre3, 

1. Associate Professor, 
2. Professor, Swasthvritta, E-mail:-drpragatik@gmail.com 
3. Prof & HOD Shalyatantra, Email: -rgundre200@gmail.com

Yashvantrao Chavhan Ayurved College, Aurangabad, Maharashtra, India.

*Corresponding author: e-mail id:- drabhijeetpatil321@gmail.com

Abstract:
Among all this Samhitas of Ayurveda Charaka samhita is a vast treasure of knowledge regarding medicinal plants. Charaka is the first person who could classify the existing plants, into pharmacological categories and given 50 classes which are known as Dashemani. Acharaya Charaka has mentioned Yashtimadhu in the chief 11 Dashemani which highlights its own importance in Ayurveda [2]. In Ayurveda Yashtimadhu is one of the important plant which is been referred in various texts with many therapeutically uses. In Charaka samhita two types of Klitaka are mentioned. It is quoted as, Anup and Sthalaj[3]. In Bhavaprakasha nighantu they can be also termed as terrestrial variety and aquatic variety respectively. The terrestrial variety has been already concluded as a Glycyrrhiza glabra Linn. But Jalaja Klitaka still unidentified [4]. The very first reference of Yastimadhu can bee found in Atharva Veda 7/56/2. In Atharva veda it is coated that Yastimadhu destroy snake poison. [5]

Introduction:
The knowledge about medicinal plants in the early age was documented systematically and organized scientifically in Ayurvedic Samhitas, Nighantus and other texts. In which we can get so many references of medicinal plants [1]. Among all this Samhitas of Ayurveda Charaka samhita is a vast treasure of knowledge regarding medicinal plants. Charaka is the first person who could classify the existing plants, into pharmacological categories and given 50 classes which are known as Dashemani. Acharaya Charaka has mentioned Yashtimadhu in the chief 11 Dashemani which highlights its own importance in Ayurveda [2]. In Ayurveda Yashtimadhu is one of the important plant which is been referred in various texts with many therapeutically uses. In Charaka samhita two types of Klitaka are mentioned. It is quoted as, Anup and Sthalaj[3]. In Bhavaprakasha nighantu they can be also termed as terrestrial variety and aquatic variety respectively. The terrestrial variety has been already concluded as a Glycyrrhiza glabra Linn. But Jalaja Klitaka still unidentified [4]. The very first reference of Yastimadhu can bee found in Atharva Veda 7/56/2. In Atharva veda it is coated that Yastimadhu destroy snake poison. [5]

Therefore it is need to evaluate the Vranaropana karma of Yashtimadhu ointment on the basis of its action or properties as already mentioned in
Ayurveda texts. Hence present study was carried out in Albino rats (Wistar) to prove its efficacy.

Materials and methods:

Plant Material: Collection of Yashtimadhu Mool

Yashtimadhu Roots were procured in month of February 2016 from shri shail herb, Nagpur (Maharashtra). Authentication of Yashtimadhu was done and were sent for authentication to Botanical Survey of India, Pune (Maharashtra) on dated 10/01/2016.

Animals: Twelve Healthy Wistar rats of 150 to 200 gm weight either sex were obtained from the house of JNMC Sawangi (M) Wardha, Maharashtra under the ambit of Datta Meghe Institute of Medical Sciences (Deemed to be University). They were kept in the animal house maintained at 27 °C ± 2 °C under 12 hrs dark / light cycle. They were fed with standard rat feed and water ad libitum was provided. The procedure were reviewed and approved by the Institutional Animal Ethics Committee (Letter No: 571/a/CPCSEA) on Dated 25/4/2015.

METHODS:

Ointment preparation for topical application:

Water extract of Glycyrrhiza glabra roots was used for the preparation of the ointment for topical application. 0.5% (W/W) of extract ointment was formulated using Glycerine 50 gm and Sodium benzoate 2 gm taken mix and stir well very slowly for 15 minute (fig 1). After the completion of this procedure prepared ointment send for the analysis at “Unijules Pharmaceuticals”, Kamthee, Nagpur. After that all necessary quality control parameter was tsted in Yashtimadhu ointment. As per the opinion of analyst finished product is standard in quality as per the specification No. F1112-S.

Wound healing evaluation:

Excision Wound Model: six animals (Wister rats) weighing 150-200 g either sex were used in this study as per OECD guidelines 402 i.e. acute dermal toxicity test [6]. The animals were acclimatized for six days under aseptic laboratory conditions. They were housed in polypropylene cages and maintained at 27 °C ± 2 °C under 12 hrs dark / light cycle and fed with standard rat feed, water ad libitum was provided. Under aseptic condition the rats were anesthetized by using kitamine injection 30 mg/kg/bw with insulin syringe And 1.5 to 2cm Excision was created by scalpel blade on dorsal region of the rat under sterile condition and Haemostasis was achieved by blotting the wound with cotton swab soaked in normal saline. Animal was treated with Yashtimadhu ointment in quantity sufficient (qs) and applied with sterile spatula two time in day (BD) as Standard. Wound area is measured on 0 day, 4th, 8th, 12th, 16th days with the help of tress paper for Post wound for determination of wound contraction calculated by applying a formula. Completely healed percentage of wound contraction of both groups was compared. (Table 2 & 3) [7].

Measurement of wound area:

The progressive changes in wound area were measured graphically by tracing the wound margin on a graph paper on 0 day, 4th, 8th, 12th, 16th day. The changes in healing of wound i.e. measurement of wound contraction on graph paper were measure as unit (mm²). Wound contraction was expressed as percentage reduction of original wound size. [8]
Formula: \% of Contraction = Healed Area \times 100

Total Wound area

\{Healed area = Original wound area – Present wound area\}

Statistical Analysis

All data will be expressed as mean ± SEM. The statistical significance between groups will be compared using unpaired t-test. \( P < 0.05 \) will be considered as significant (Table No.4). For comparison between two groups we have used unpaired t-test. It was observe that \( P \)-value is less than 0.05 hence we concluded that there is significant difference between effects of two groups.

Results:

In this study quality control and standardization of Yashtimadhu was done in which some required parameter was tested such as pH (7.2), Viscosity (169 cps), HPTLC, stability, Spradability, Penetratrability was complies, microbial limit was 124 cfu/g , heavy metals was complies , Escherichia species, salmonella species was absent in sample. The studies on excision wound healing model reveals that the efficacy of the Yashtimadhu ointment was better in wound healing there was decrease in wound area day by day.

Discussion:

The aim of quality control standardization of ointment was to check importance of pH, viscosity and Spreadability in wound healing process. Minimum knowledge exists on the pH dependency of the antibacterial efficacy of substances. In previous studies it has been shown that the pH in chronic wounds most commonly has a range of 6.5-8.5

\[9\] Sushruta has written separate chapter on vrana, so the importance for wound managements reflected. In Ayurveda treatise grouped herbs called either Varga or Gana \[10\]. This gana are named on the basis of Pharmacological action and name of main plant in Charaka samhita and Sushruta samhita respectively \[11\]. In sushrut samhita yastimadhu come under sarivadi gana, anjanadi gana, ambashtadi gana In Ashtang Hriday Yashtimadhu comes under Jivaniyagana, Anjanadi, Sandhaniya and Nyagrodhadi gana and shodhanadi gana. Yashtimadhu having madhur rasa which homologous with the body increase the body- nutrient fluid, bone, marrow. It has a beneficial influence on the skin. Yashtimadhu is having Madhura rasa due to which Epithelization of skin occur and is also antispasmodic in action. In this way its act as a sandhaniya during the process of vranropan\[12\].

The initial area of the wound was measure 207 graphically gradually it was measured on 4\(^{th}\), 8\(^{th}\), 12\(^{th}\), 16\(^{th}\) day . Contraction of wound on 4\(^{th}\) day was 24.15\% , on 8\(^{th}\) day it was 80.60\% , on 12\(^{th}\) day it was 91 .78 \% and on 16\(^{th}\) day it was 100\%. That shows the efficacy of the Yashtimadhu ointment in sadyovrana.

Conclusion

The duration taken for complete wound contraction in Yashtimadhu ointment was much earlier when compare with standard betadine ointment. This was innovative medium of Yashtimadhu ointment preparation for topical application so further clinical study should be conduct. The result of the Yashtimadhu ointment is having potent wound healing activity.

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