ANTI- HEMORRHAGIC ACTIVITY OF NATHAICHOORI VIRAI CHOORANAM; A MULTI HERBAL SIDDHA FORMULATION

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ABSTRACT

Siddha medicine is one of the oldest medical systems known to mankind. More than 2500 years ago, the Siddha system of medicine is generated from Dravidian culture. It is claimed to revitalize and rejuvenate dysfunctional organs that cause the disease. Herbs have a variety of uses including culinary, medicinal, and in some cases spiritual usage. Archaeological evidence indicates that the use of medicinal plants dates at least to the Paleolithic, approximately 60,000 years ago. Plants contain phytochemicals that have specific effects on the body. A scientific investigation of medicinal plants not only demonstrates a particular type of activity which has been reported in ancient literature but also time emerges produces some unexpected activity. The main aim of the present investigation is to evaluate the styptic activity (anti hemorrhagic) of Nathaichoori virai Chooranam (NVC). The results of the study reveal that treatment with NVC at the dose of 500 and 1000 mg/kg has shown significant decrease in bleeding time, clotting time and prothrombin time in treated rats. From the results it was concluded that the siddha formulation NVC has greater potential of preventing hemorrhage. Further studies are to be needed to prove its therapeutic effect through clinical trials.

KEYWORDS: Nathaichoori virai chooranam, Hemorrhage, Siddha medicine, bleeding time, clotting time, prothrombin time.

INTRODUCTION

Menorrhagia denotes cyclic regular bleeding which is excessive in amount or duration. A blood loss of greater than 80 ml constitutes menorrhagia (also called hypermenorrhea) with large blood clots during menstruation. A period that lasts longer than seven days.
It is a highly distressing symptom which frequently leads to loss of self-esteem, absence from work, sexual dysfunction in severe cases, heavy menstruation can interfere with sleep and daily activities. Night time bleeding that requires getting up to change pads or tampons. Blood loss from heavy periods can also lead to anemia, causing symptoms such as fatigue and shortness of breath. A woman's report of excessive bleeding, whether she describes it as "large amounts," "clotting," "flooding," or "heavy use of tampons/napkins," has little correlation with the actual amount of blood lost.[2] The prevalence of abnormal uterine bleeding (AUB) is estimated at 11-13% in the general population and increases with age, reaching 24% in those aged 36-40 years. World Health Organization reports that 18 million women aged 30-55 years perceive their menstrual bleeding to be exorbitant. About 1/3rd of the women describe their periods as heavy. One in 20 women aged 30 to 49 years consult their gynecologist each year for heavy menstruation.[3] To avoid such invasive and painstaking procedure for the treatment of menorrhagia Siddha medicines may have an elucidation. Because our Siddha system of medicine contains so many formulations which have greater potential in arresting the bleeding without any adverse effects. Nathaichoorivirai chooranam indicated for perumbadu (menorrhagia)[4] to evaluate its styptic activity, which has not been evaluated so far. As per Siddha philosophy, Thuvarppu suvai (Astringent) based drugs are known for their styptic action by constricting the blood vessels.[5] So, it may be arresting the bleeding.

MATERIALS AND METHODS

Standard Operative Procedure

Collection and Authentication of the raw drugs

The raw drugs were procured from a reputed raw drug store and authenticated by the competent authority in the department of Gunapadam, NIS.

Ingredients

- Nathaichori virai (Spermacoe hispida)
- Nayuruvi ver (Achyranthus aspera)
- Avarai pinju (Cassia auriculata)

- Each of equal quantity.
Preparation of the medicine\[6\]
Nathaichoori virai and Nayuruvi ver were soaked well in coconut milk for 96 min and dried in sun shadow. Then the dried avarai pinju was added and ground well to get chooranam.

Experimental Animals
Adult albino Rats of either sex with an initial weight of (150-280gm) were selected and they were kept in a temperature-controlled environment (23 ± 2ºC). Animals were deprived of food and water for 16 hours before starting of the dissection. The animals were used in the study with the approval of IAEC XIII/IAEC/CPCSEA/VELCP/24/8.8.13 which was obtained from Vel’s University.

Drug Treatment
Fasted Rats were divided into 3 groups of six each. Group I, II & III, Control (2% Carboxy Methyl Cellulose 2ml p.o.) NVC 500mg/kg & 1000mg/kg; p.o body weight as a fine aqueous suspension orally for three days.

Procedure
The animals were sacrificed after 24 hours of last dose of test drug. The tail was cut with a scalpel 1-2cm proximal from the end, to study the bleeding time and clotting time. Subsequently blood was taken directly from the retro orbital vein in plain tube for studying the prothrombin time. The serum was separated by cold centrifuging machine at 4000 to 5000r.p.m for 15 minutes.

Methods followed to study the various parameters are as under
Bleeding Time (Duke’s method)
Rat's tail was cut with a scalpel 1-2 cm proximal from the end and bleeding time was calculated from the time of starting of bleeding till bleeding stopped. Spots were made with the bleeding tail on a blotting paper every 15seconds till bleeding stopped and bleeding time was calculated accordingly. Or the time taken between the appearances of blood to the cessation of bleeding is taken as the bleeding time expressed in seconds.

Clotting Time
Blood was drawn into a capillary tube. The time of appearance of the drop of the blood on the cut tail was noted. The capillary glass tube is then kept between the palms of both hands for 30 second to keep it at body temperature. After 30 second the tube was taken out and small
portion of the capillary tube was broken at regular intervals of 10 seconds, until a thread of clotted blood appears between the two pieces of capillary glass tube. The time interval between the appearance of the drop of the blood and the thread of the blood clot was the clotting time of rat expressed in minutes.

**Prothrombin Time**

The prothrombin time was measured in terms of minutes taken by a sample of blood to form a clot in presence of Thromboplastin and calcium ions.

**Table 1: Effect of Nathaichoori virai chornam on Blood clotting profile in wistar rats.**

<table>
<thead>
<tr>
<th>Group</th>
<th>Bleeding Time (minutes)</th>
<th>Clotting Time (Seconds)</th>
<th>Prothrombin Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>226±08.00</td>
<td>2.21 ± 0.05</td>
<td>2.74 ± 1.12</td>
</tr>
<tr>
<td>NVC (500mg/kg)</td>
<td>195±10.12**</td>
<td>1.42 ± 0.04**</td>
<td>2.13 ± 1.14</td>
</tr>
<tr>
<td>NVC (1000mg/kg)</td>
<td>188±7.18**</td>
<td>1.22± 0.04**</td>
<td>2.02± 1.10*</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Heavy menstrual bleeding of endometrial origin (HMB) is one of the major healthcare problems in premenopausal women and several aspects of women’s health and QoL are adversely affected by it.[7] We did not use chemical extracts of NVC and it is impossible to
relate the therapeutic effects to a specific component of NVC, but these preliminary results may lay the foundations for future studies.

Although hysterectomy and other less-invasive surgical treatments for treating menorrhagia\[^8\], particularly in refractory cases, cost and risk of anesthesia along with short and long term morbidities make them the last treatment modality to be offered. Therefore, forthcoming investigations into NVC properties may establish it as an efficient and inexpensive alternative for invasive hysterectomy, particularly in women who are in their late reproductive stage and have a normal uterus with no significant pathology.

CONCLUSION

It is concluded from the data of the present study of siddha formulation Nathaichoori vithai chooranam possess significant decrease in bleeding time, clotting time and prothrombin time dependently. The present findings, although provides sufficient supporting data but it requiring confirmation by a larger trial, show that further research is needed before clinical application of this preparation.

REFERENCES

8. CG44 NICE. Heavy Menstrual Bleeding Clinical Guideline No 44. National Collaborating Centre for Women’s and Children’s Health Commissioned by the National Institute for Health and Clinical Excellence.