Research Article

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ROLE OF SUNTHI-LODHRA POWDER IN RAKTAPRADAR: A CLINICAL STUDY

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ABSTRACT

Raktapradar in Ayurveda is characterised by pradirana (excessive excretion) of raja (menstrual blood). It can be correlated with abnormal uterine bleeding. Various etiopathogenesis are present along with their treatments. However, cost-effective treatments with minimum side effects are yet to be established. The treatment aims to study Sunthi-Lodhra powder's efficacy in managing Raktapradar. Method: A clinical trial was conducted on 30 patients aged 18 - 45. We administered Sunthi - Lodhra powder mixed with ghrita and sarkara twice daily after food. Follow ups were taken after each menstrual bleeding for three consecutive menstrual cycles, and assessments were done accordingly on various parameters. Paired t-test was done for statistical analysis. Results: Based on the parameters studied, the results are highly significant on most parameters. Conclusion: Drug formulation Sunthi and Lodhra powder with ghrita and sarkara show promising results in treating most of the symptoms of Raktapradra.

Keywords: Raktapradar, Abnormal Uterine Bleeding, Ayurveda, Sunthi, Lodhra, menorrhagia.

INTRODUCTION

Women represent the cornerstone of a family's overall health. The female menstrual cycle involves dramatic monthly hormonal changes affecting a woman's emotional and physical state. The female reproduction system has great importance, and any disease related to this system will affect a woman's health and happiness.

Ayurveda has described fundamental concepts like dosha and dhatu with their upadhatu and mala. Artava is the upadhatu of rasa dhatu. 'Ati' means excessive, and 'artava' means menstrual blood. In Ayurveda, excessive bleeding during menstruation is known as Raktapradar. It is a raktapradoshaja vyadhi[1] due to pittavritta apana vayu[2] causing the vitiation of rakta dhatu. Raktaptadar is characterised by artava ati pravritti, deerga kala pravritti, anritukaal pravritti, daha in adhovankshana pradesha, sroni, prustha and kukshi, shula in garbhasaya, angamarda, etc. [3].

In modern science, we can consider Raktapradar as abnormal uterine bleeding. It is a problem mostly prevalent in reproductive age group worldwide and affects the quality of life. It is reported to occur in 9 to 14 % of women between menarche and menopause. In India, the reported prevalence of AUB is around 17.9 % [4].

Abnormal uterine bleeding describes irregularities in the menstrual cycle involving frequency, regularity, duration and flow volume outside pregnancy[5]. It primarily implies a mechanism of anovulation. Without ovulation and progesterone production, the endometrium responds to estrogen stimulation with proliferation. This endometrial growth without periodic shedding results in the eventual breakdown of the fragile endometrial tissue. Low levels of estrogen stimulation will result in irregular and prolonged bleeding, whereas higher sustained levels result in episodes of amenorrhea followed by acute, heavy bleeding. This study aimed a systematic compilation, analysis and interpretation of the concepts of Raktapradar with contemporary science, understanding the concepts of abnormal uterine bleeding from an Ayurvedic perspective and assessing the efficacy of the trial drug, Sunthi-Lodhra churna along with ghrita and sarkara in the treatment of it.

Aims and Objectives

- To review Ayurvedic and related modern literature regarding Raktapradar.
- To study the drug Sunthi-lodhra churna with ghrita and sarkara regarding their rasa, guna, virya, vipak, etc.
- To evaluate the efficacy of Sunthi-lodhra churna with ghrita and sarkara in managing Raktapradar.

MATERIALS AND METHODS

Source of data: 30 patients under the inclusive criteria were selected from the outpatient and In-patient departments of Prasuti Tantra evam Stree Roga, Government Ayurvedic College Hospital, Guwahati, after proper counselling and written consent from each patient before the study. A detailed history was taken in a pre-designed proforma.

Ethical clearance: Approved by the Institutional Ethical Committee (Ref No. IEC/2020/235)

Inclusion criteria

- Age group from 18-45 years.
- Patients with complaints of excessive bleeding per vagina during menstruation either in amount or duration or during the inter-menstrual period for three consecutive menstrual cycles.

Exclusion criteria

- Patients who are suffering from abnormal uterine bleeding complicated by non-responding anaemia and confirmed for surgical interventions.
- Cases associated with pelvic pathologies like uterine fibroid, adenomyosis, polyp, pelvic inflammatory disease, postmenopausal bleeding, etc.
- Patients with any systemic diseases
- Patients using any oral contraceptive pills or IUCD, or hormonal therapy.
- History of recent delivery or abortion.
- Having a favourable report for VDRL, HIV, HCV, HBsAg.
- Bleeding disorders
- Severe anaemia (Hb% ≤ 7 gm/dl)

Investigations

- Blood Routine Examination
- ABORH grouping
- Bleeding time and Clotting Time
- Random blood sugar
- Platelet Count
- VDRL, HIV, HBsAg, Anti HCV
- T3, T4, TSH
- Ultrasonography of the lower abdomen.
- Urine routine examination

Trial methodology: The study was performed in a randomised open trial.

Trial drug: Sunthi-lodhra churna. Reference is from Yogratnakara, Stri Roga Adhayaya. Pradara Chikitsa verse 18 [6].

Dose: 3 grams twice daily after food [7].

Sahapana: Ghrita and sarkara (6 grams each) [8].

Duration of treatment: For three consecutive menstrual cycles.

Follow up: After each menstrual cycle till 3rd month.

Assessment parameters: Scoring was done purely based on the patient's statement.

Subjective Parameters

Table 1: Gradation of cardinal symptoms in the study

Symptoms		Grading
Raja Srava pramana (Quantity of bleeding)	Complete soakage of 1-2 pads in 24 hours	0
	Complete soakage of 3-4 pads in 24 hours	1
	Complete soakage of 5-6 pads in 24 hours	2
	Complete soakage of 7 pads in 24 hours	3
	Complete soakage of > 7 pads in 24 hours	4
Raja Srava kaala (Duration of bleeding)	Bleeding for < 5 days	0
	6-7 days	1
	8-9 days	2
	>9 days	3
Anritu kaal (Intermenstrual period)	25-30 days	0
	20-24 days	1
	15-19 days	2
	<15 days	3
Vedana (Pain during menstruation)	No pain during menstruation	0
	Complaints of pain but do not require medical assistance and does not affect daily activity	1
	Complaints of pain and takes one or two doses of drugs for relief which does not affect daily activity	2
	Complaints of pain, bound to take medicine and it is effective, affect daily activity	3
Discharge of clots during menstrual bleeding	no history of passing clots with menstrual bleeding	0
	Clots observed for 1-2 days of menstrual bleeding	1
	Clots observed for 3-4 days of menstrual bleeding	2
	Clots observed throughout bleeding	3

Table 2: Assessment of associated symptoms in the study

Associated Symptom	Assessment
Angamarda (Body ache)	Present/absent
Dourbalya (General weakness)	Present/absent
Daha (Burning sensation)	Present/absent
Bhrama (Dizziness)	Present/absent
Arochaka (Reduced appetite)	Present/absent

Objective parameter: Haemoglobin percentages were recorded before and after treatment.

Statistical analysis: The observed data obtained from the research proforma were subjected to statistical analysis. Paired t-test was done to evaluate statistical inference at $P < 0.05$.

Final assessment: The final assessment of the overall effect of the therapy was done by

1. Cured: > 90% complete relief
2. Marked Improvement: 76 – 90 % relief of overall symptoms.
3. Moderate Improvement: 51-75% improvement of overall symptoms.
4. Mild Improvement: 25-50% improvement in overall symptoms.
5. No improvement: < 25% improvement of overall symptoms

RESULTS

Observations and results were done on a demographic and clinical study of 30 patients after complete treatment.

The maximum number of patients in the present study in terms of incidence wise belonged to the age group between 32–38 years, married, housewife, middle class, the high school passed, having two children, had no abortion history, had no family history of heavy and prolonged menstrual bleeding. Maximum patients were of vata pradhan prakriti.

Table 3: Effect of trial drug on cardinal symptoms of Raktapradar on 1st follow-up

Symptoms	$\bar{X}_{BT}$	$\bar{X}_{F1}$	$\bar{X}_{BT-F1}$	SD BT-F1	SE	t- value	P	Remarks
Srava praman N=30	2.30	2.07	0.23	0.15	0.027	2.9709	0.0059	Very Significant
Srava kaal N= 18	0.80	0.67	0.13	0.10	0.023	2.1122	0.0434	Significant
Anritu kaal N= 14	0.73	0.70	0.03	0.02	0.005	1.0000	0.3256	Not significant
Vedana N= 19	1.0	0.90	0.10	0.07	0.016	1.7951	0.0831	Not Significant
Discharge of clots N = 24	1.30	1.20	0.10	0.03	0.006	1.7951	0.0831	Not Significant

N: number of patients, BT: Before Treatment, F1: first follow-up, t-test of significance, p- probability

Table 4: Effect of trial drug on cardinal symptoms of Raktapradar on 2nd follow-up

Symptoms	$\bar{X}_{BT}$	$\bar{X}_{F2}$	$\bar{X}_{BT-F2}$	SD BT-F2	SE	t-value	p	Remarks
Srava praman N=30	2.30	1.50	0.80	0.16	0.029	7.9544	< 0.0001	Extremely Significant
Srava kaal N=18	0.80	0.57	0.23	0.18	0.042	2.9709	0.0059	Significant
Anritu kaal N= 14	0.73	0.53	0.20	0.26	0.069	2.6926	0.0117	Significant
Vedana N= 19	1.0	0.73	0.27	0.18	0.041	3.2474	0.0029	Significant
Discharge of clots N = 24	1.30	0.73	0.57	0.27	0.055	5.4613	0.0001	Extremely significant

N: number of patients BT: Before Treatment F2: second follow up, t: test of significance, p: probability.

Table 5: Effect of trial drug on cardinal symptoms of Raktapradar after treatment

Symptoms	$\bar{X}_{BT}$	$\bar{X}_{AT}$	$\bar{X}_{BT-AT}$	SD BT-AT	SE	t-value	p	Remarks
Srava praman N =30	2.30	1.17	1.13	0.09	0.016	17.9540	<.0001	Highly Significant
Srava kaal N = 18	0.80	0.30	0.50	0.34	0.08	4.0139	0.0004	Significant
Anritu kaal N = 14	0.73	0.43	0.30	0.31	0.082	3.5254	0.0014	Significant
Vedana N = 19	1.0	0.53	0.47	0.36	0.082	5.0374	<0.0001	Highly Significant
Discharge of clots N = 24	1.30	0.50	0.80	0.22	0.044	6.5955	<0.0001	Highly Significant

Table 6: Effect of trial drug on objective parameter

Symptoms	$\bar{X}_{BT}$	$\bar{X}_{AT}$	$\bar{X}_{BT-AT}$	SD BT-AT	SE	t-value	p	Remarks
Hb% (N=30)	9.290	10.097	- 0.807	0.053	0.048	16.7464	< 0.0001	Extremely significant

N: number of patients BT: Before Treatment AT: After treatment t: test of significance p: probability.

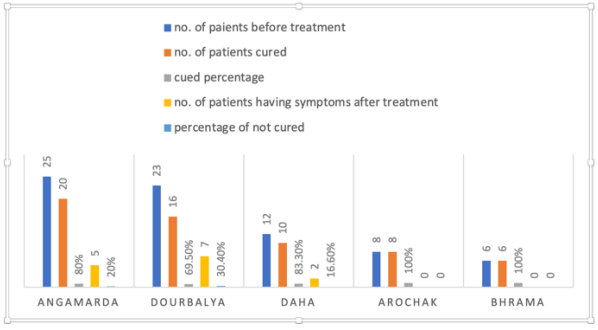

Figure 1: Effect of trial drug on associated symptoms after treatment.

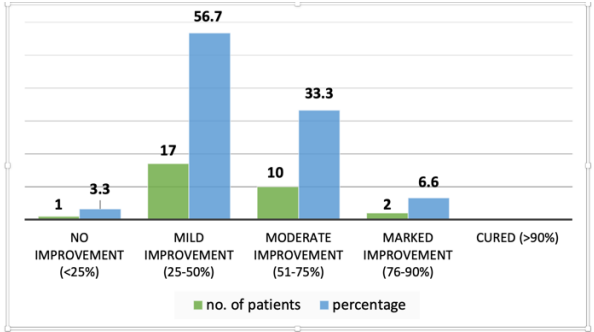

Figure 2: Overall effect of treatment

DISCUSSION

Cardinal symptoms

Raja srava praman (Quantity of bleeding) - Out of 30 patients, 5 patients, i.e., 16.6 %, got cured, 14 patients, i.e., 46.6 % got moderate improvement and 11, i.e., 36.6% patients got mild improvement.

Raja srava kaal (Duration of bleeding) - Out of 18 patients, 10, i.e., 52.6 %, got cured, 3 patients, i.e., 15.7 %, got moderately improved and 5 patients, i.e., 27.7 %, remained unchanged.

Anritu kaal (Intermenstrual period) - Out of 14 patients, 3 patients, i.e., 21.4 % got cured, 4 patients, i.e., 28.5 % got

moderately improved, 2 patients, i.e., 14.28% got mild improvement and 5 patients, i.e., 35.7 % remain unchanged.
Vedana (Pain during menstruation) - Out of 19 patients, 3 patients, i.e., 15.7 %, got cured, 11 patients, i.e., 57.8%, improved, and 5 patients, i.e., 26.3 %, remained unchanged.
Discharge of clots during menstrual bleeding - Out of 24 patients, 10 patients, i.e., 41.6%, got cured, 10 patients, i.e., 41.6 %, got improved, and 4 patients, i.e., 16.6%, remained unchanged.

Effect of therapy on the objective parameter of Raktapradar: We observed a highly significant improvement in the Hb% after the end of the treatment period.

Probable mode of action of the trial drug on Raktapradar

According to samprapti, rasavaha srota dusti is involved, henceforth the presence of ama. So, the pitta will be sa-amapitta and there is obstruction of vayu (Apana vayudusti). as per prakriti-sama-samveta Siddhant mentioned in Charaka Samhita, Vimansthana chapter 1, properties of individual drugs may show synergistic action when in combination. The principle of treatment of Raktapradar should be as follows.

- Ama pachan
- Pitta shaman
- Vata shamana or anuloman

Sunthi: Raktapradar is a symptom of pittavritta apana vayu, so guru guna, ushna virya, madhura vipak as well as dipaniya, vatanulomaka, vibandha nashaka properties [9] of Sunthi helps to normalise the movement of apana vayu that has got obstructed by pitta in the artavavaha srotasa. Due to katu rasa, ruksa guna and madhura vipak, pitta dosha will be normalized. So we hypothesised to see the positive effect in regulating the menstrual cycle and subsidising symptoms like aruchi due to ama dosha pachana. Grahi karma acts on ama pachan and srotasodhan.

Recent studies show that the extract of ginger contains;

- Alkaloids acted as coagulant agents by decreasing the bleeding time and increasing the RBCs, WBCs and platelet count and increasing the percentage of haemoglobin [10,11].
- Flavonoids show antioxidant properties and increase the healthy circulation of blood. It strengthens the capillaries walls and acts as phytoestrogens[12].
- Tannins show anti-inflammatory actions and suppress the production of prostaglandins, PGE2 and PGI (both are vasodilators and antiplatelet aggregators) [13].
- It also shows hepatoprotective effects leading to increased absorption of Vitamin K [14].
- Ginger, one of the forms of Sunthi, can reduce symptoms of dysmenorrhea in some women when taken in a specific extract composition [15].

Lodhra: It has ruksa and laghu guna and kasaya rasa [16] which may affect the sara and drava guna of pitta dosha. Pitta shaman could be the reason for reducing the amount of bleeding. Laghu, ruksa guna having kapha-pitta shaman and shoshana property helps in srotasodhana. Stambhana karma[16] of Lodhra help in raktastambhan.

Recent studies show;

- The ethanolic extract of *Symplocus racemose* triggers the hypothalamus to produce FSH and LH hormones resulting in progesterone production and controlling the bleeding [17].
- Alkaloids of Lodhra, mainly loturine and spinasterol, has shown anti-inflammatory activity [18]. Furthermore, it is suggested that Lodhra might have influenced the endometrial prostaglandin apparatus, effectively controlling dysfunctional uterine bleeding.
- Lodhra contains 3- monoglucofuronoside of 7-methylleucopelagonidin, which also exerts vaso-constrictive action and reduces the permeability of the cell membrane. It has also shown anti-fibrinolytic activity [19].
- The hepato-protective effect of *Symplocos racemosa* showed a significant reduction in the levels of hepatic enzymes and total bilirubin [20,21]. In Raktapradar, yakrit and pliha gets vitiated. So, the hepato-protective activity regulates the conjugation and metabolism of female hormones, thus maintaining a regular menstrual cycle.

Ghrita: Ghrita is snigdha, soumya, sheeta in virya and madhura in vipak, which will suppress the vitiated pitta doshas. It has tridosha shamaka properties, which will balance the vata and pitta along with the kapha vitiated doshas. It has dipana and rucya karmas which will treat the associated symptoms like angamarda and aruchi. Its balya, ojo vardhaka, hrdya etc. properties will affect the dourbalya and angamarda. It is yogvahi in nature and acts as a carrier for Sunthi-Lodhra churna. Ghrita provides energy to the body. It contains various glycerides, free fatty acids, vitamins A, D, E, K, etc. It has an antioxidant property that helps the body quickly absorb vitamins and minerals [22].

Sarkara: Due to madhura rasa, sheeta virya, madhura vipak, sarkara will pacify the pitta, vata doshas and rakta dhatu [23]. It also acts as balya, brmhaniya which will improve the dourbalya and bhrama. Bhrama, murchha etc., occur due to cerebral hypoxia. Reducing the amount of blood loss could have helped in curing bhrama. Sheeta virya will pacify daha and trishna. It also enhances the taste for better palatability action.

CONCLUSION

Raktapradar is a fairly common disorder in women that poignant them at some point. The literature advocates treatment principles like aam pachan, pitta shamak and vata shaman etc., for its management. In our present studies, the various observations and results of the trial drug, along with pharmacological virtue and chemical constituents, have been the prime considerations. Drugs used in our study, Sunthi and Lodhra, have known vata-pitta shamak and vatanuloman properties. Our trial drug has exhibited excellent results regarding excessive and prolonged bleeding by reducing blood loss, both in amount and duration. Moreover, the subjects experienced normalisation of the intermenstrual period and pain relief. Furthermore, encouraging results have been obtained in relation to the associated symptoms like angamarda, bhrama etc.

Hence, based on the clinical observations and patients' responses, it can be considered a safe and potent treatment modality for treating Raktapradar.

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