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ORIGINAL RESEARCH ARTICLE

A Clinical Study of Guduchi *(Tinospora cordifolia Willd. Miers ex Hook. f. Thoms)* in Antihyperlipidemic Effect w.s.r. to Sthaulya

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ABSTRACT

A science is that which contributes to faith and this faith further gives scope to science. Such a science is Ayurveda, which is intended to be in the shadow of faith and in the service of its highest ideals. Ayurveda 'The Vedic System' believes— each plant has a medicinal value that can be utilized as a medicine for particular ailments.Modern Botanist has studied Guduchi as Tinospora cord ifolia (family-menispermaceae).They have mentioned Guduchi as a tonic & also stated its Anti -hyperlipidemic and Anti-hyperglycaemic effect.

In present era, Sthoolta is the burning problem which is the by-product of urbanization. It has significant life ruining effect on the patient's quality of life. Not only is this it the root cause of major ailments like Diabetes, Heart Problems, Hypertension, Breathing ailments etc. Thus, according to above discussion, it has become need of the hour to tackle this disease in all direction with the knowledge of different system of medicine prevailing globally. As Ayurveda the ancient system of medicine has a lot to offer in this direction, therefore an Ayurvedic medicinal plant Guduchi, which brings doshas from Visam state to Sam state, has been choosen to assess its efficacy on Sthaulya Roga (Obesity).

Among 30 patients, there are two groups A & B of 15 patients each, in which all subjective as well as objective parameters were analyzed. In this study we can say that Guduchi Kwatha is more effective than Guduchi Sattva because active constituents of the drug are more in Kwatha form and also Kwatha gets absorbed more easily and quickly than the Sattva which has large amount of starch in it.

Key words: Guduchi, Sthoolta, Guduchi kwatha, Guduchi satva, Hyperlipidemia etc.

INTRODUCTION

One such plant among the green flora is botanically known as Tinospora cordifolia and is termed as Guduchi in Ayurvedic texts and is known for its medicinal values. Its medicinal properties are known by the fact that it is even termed as AMRITA. It is a well known Rasayan drug that means it brings equilibrium in the body by bringing all the vitiated Dhatus also Meda Dhatu to Sama (equilibrium) state. Its Medohara effect is stated by Dhanvantari Nighantu as:

गुडूची कफवातघ्नी पित्तमेदोविशोषिणी ।
रक्तवातप्रशमनी कण्डूविर्सपनाशिनी ।। ध नि/गुडूच्यादि वर्ग/7

A healthy body is the guest chamber for soul and sick body is a prison. Without any doubt there are a good number of diseases which develop and victimize mankind, Obesity is one of them. In Ayurvedic texts, Obesity is defined as Stahulya or Medo Roga.Acharya Charak has also mentioned Atisthaulya Purusha as one of the Astanindita Purusha.

इह खलु शरीरमधिकृत्याष्टौ पुरूषा निन्दिता भवन्ति..... अतिस्थूलश्च अतिकृषश्चेति । च सू 21/3

The basic cause of Obesity is overnutrition. A diet containing more energy than needed may lead to

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prolonged post-prandial hyperlipidaemia and deposition of triglycerides in adipose tissue resulting in obesity.

AIMS AND OBJECTIVES

- To study the aetiopathogenesis of Sthaulya, both according to Ayurvedic & Modern principles.
- To evaluate the efficacy of Guḍuchi Sattva in Sthaulya (Obesity).
- To evaluate the efficacy of Guḍuchi Kwatha in Sthaulya (Obesity).
- To compare the efficacy of Guḍuchi Sattva and Guḍuchi Kwatha in the management of Sthaulya (Obesity).
- To compile the data generated and to analyze them by proper statistical methods.

MATERIALS AND METHODS

The material and methods adopted in present study are summarized below:

1. Selection of Patients*:* The study was conducted on 30 clinically diagnosed patients of Sthaulya Roga, selected randomly from OPD/IPD of Govt. Dhanvantari Ayurvedic College, Ujjain. The patients were selected according to following criteria:

a) Exclusion Criteria*:* Following patients were excluded in present trial.

- Having drug induced obesity.
- Having obesity due to certain secondary causes.
- Pregnant women.

b) Inclusion Criteria*:* All the obese patients except exclusion criteria, who were diagnosed simple obesity without any complications were included in the present trial.

- Age: 16-60 years
- Sex: No restrictions

2. Plan of study*:* The selected patients were divided into two groups--

a) Group A— Patients were treated with ***Guduchi* Sattva kalpana**.

b) Group B—Patients were treated with ***Guduchi* Kwatha. Kalpana**

Distribution of patients with dose, duration and Bhaishjaya Kaal

S. No	Group	No of patients	Dose	Duration of therapy	Bhaishjaya Kaal
1	G. Sattva	15	250-500 mg BD	30 days	One hr after meal
2	G. Kwatha	15	50-100 ml BD	30 days	One hr after meal

3. Diagnostic Criteria*:*

All the patients in present clinical study were studied under following headings--

- History
- Physical Examination
- Laboratory Investigations
- **Subjective Parameters—**This assessment is based on the feeling of the patient. It includes following parameters—
  Daurbalyata Daurgandhta Swedabadh Ksudhatimatram Pipasatiyoga Javoparodh C.S.U.S (Chal Sphik Udar Stana) Sudraswasa Nidradhikya Angasaithilya Alpapran
- **Objective Parameters**—It includes mainly BMI and also other Physical and Biochemical investigations. The parameters taken for the present study are:

Cardinal Measurements	Pathological Investigation	Physical Measurements
BMI	Complete blood Profile	Chest/Breast
Weight	Blood sugar	Abdomen
Height	Urine routine	Hip
	Lipid Profile	Mid thigh
	Thyroid Function Test	Mid arm
		Calf region

4. Statistical Analysis:

The data generated in the clinical study was analyzed by applying the 't' test in the criteria of a single group, and to compare the effect of the therapy on the two groups. The obtained results were interpreted as:

- Insignificant <0.10, < 0.05
- Significant <0.02, <0.01
- Highly significant <0.001

5. Overall effect of Therapy-On the basis of percentage relief in Subjective parameters, Objective parameters and investigations the overall result of drug trial was assessed as:

- No improvement -0-24%
- Mild -25-49%
- Moderate -50-74%
- Marked -75-100%

OBSERVATION AND RESULTS

The following flowchart depicts the figures of the clinical study-

Table 1: Showing overall percentage result in subjective parameters n=15

S. No	Subjective Parameters	Group A	Group B	Total result
1	Daurbalyata	83.33	86.11	84.72
2	Daurgandha	50.00	81.81	65.90

3	Swedabadh	30.76	72.72	51.74
4	Kshudhadhikya	42.85	80.26	61.55
5	Pipasatiyoga	18.18	81.81	49.99
6	Javoparodh	70.00	84.61	77.30
7	CSUS	10.52	62.50	36.51
8	Kshudraswasa	53.33	81.57	67.45
9	Nidradhikya	28.12	81.57	54.84
10	Angashaithilya	37.50	83.33	60.41
11	Alpapran	60.86	85.36	73.11
	Overall	**44.13**	**80.15**	**62.13**

Table 2: Showing overall effect of trial drug on all Lipid,Bl sugar,Wt and BMI Parameters in both groups n=15

S. No	Lipid, Bl sugar, Wt BMI	Mean score			% change	+/- SD	+/-SE	T	P	Result
		BT	AT	Diff						
1	Total lipid	557.06	519.17	↓37.90	↓6.80	40.68	28.77	1.32	<0.1	INS
2	Triglycerides	102.97	94.3	↓8.67	↓8.41	6.40	4.53	1.91	<0.1	INS
3	S.Cholesterol	225.54	210.6	↓14.94	↓6.62	16.68	11.80	1.27	<0.1	INS
4	HDL	51.10	50.73	↓0.37	↓0.71	1.93	1.36	0.27	<0.1	INS
5	LDL	154.42	142.35	↓12.07	↓7.82	13.42	9.49	1.27	<0.1	INS
6	VLDL	20.87	19.59	↓1.29	↓6.15	2.08	1.48	0.87	<0.1	INS
7	Risk Ratio	4.39	4.32	↓0.08	↓1.70	0.29	0.20	0.37	<0.1	INS
8	Bl sugar	96.87	94.50	↓2.37	↓2.45	5.90	4.17	0.57	<0.1	INS
9	Weight	55.79	55.33	↓0.47	↓0.83	0.29	0.20	2.27	<0.05	INS
10	BMI	35.52	34.45	↓1.07	↓3.03	1.15	0.82	1.32	<0.1	INS

Table 3: Showing overall effect of trial drug on all Blood & Urine Parameters n=15

S. No	Blood,Urine Parameters	Mean score			% change	+/- SD	+/-SE	T	P	Result
		BT	AT	Diff						
1	Hb	11.63	11.76	↑0.14	↑1.16	0.36	0.26	↑0.53	<0.1	INS
2	TLC	8708	8808	↑100.3	↑1.45	64.63	45.7	↑2.19	<0.05	INS
3	Polymorph	62.16	62.23	↑0.07	↑0.10	0.19	0.14	↑0.48	<0.1	INS
4	Eosinophils	0.6	0.47	↓0.14	↓22.5	0.01	0.01	27	<0.001	HS
5	Basophils	0.2	0.17	↓0.04	↓17.5	0.15	0.11	0.33	<0.1	INS
6	Monocytes	1.32	1.44	↑0.11	↑8.33	0.07	0.05	↑2.2	<0.1	INS
7	Lymphocytes	35.02	35.47	↑0.45	↑1.29	0.86	0.61	↑0.74	<0.1	INS
8	ESR	17.89	14.4	↓34.49	↓19.48	3.74	2.66	1.31	<0.1	INS
9	Urine Pus cellls	2.5	2.3	↓0.2	↓8	3.14	2.22	9.01	<0.001	HS
10	Urine Epithelial cell	2.33	2	↓0.33	↓14.16	1.57	1.11	2.97	<0.02	S
11	Amorphous material	0.46	0.37	↓0.10	↓20.65	0.05	0.03	2.71	<0.02	S
12	Mucous	0.60	0.5	↓0.10	↓15.97	0.05	0.04	2.71	<0.02	S
13	Bacteria	0.9	0.83	↓0.07	↓7.78	7.85	5.55	1.26	<0.05	INS

Table 4: Showing overall effect of trial drug on all Physical Measurements n=15

S. No	Physical measurement	Mean score			% change	+/- SD	+/-SE	T	P	Result
		BT	AT	Diff						
1	Chest/Breast	107.74	105.66	↓2.08	↓***1.93***	1.89	1.34	1.55	<0.1	INS
2	Abdomen	100.87	98.2	↓2.67	↓***2.64***	1.97	1.34	1.91	<0.1	INS
3	Hip	119.44	115.97	↓3.47	↓***2.91***	2.45	1.73	2.01	<0.1	INS
4	Mid Thigh	45.50	44.83	↓0.67	↓***1.46***	0.29	0.20	3.24	<0.01	S
5	Mid Arm	34.07	32.63	↓1.44	↓***4.21***	0.62	0.44	3.29	<0.01	S
6	Calf	40.97	39.57	↓1.4	↓***3.42***	0.66	0.47	2.98	<0.02	INS
7	Waist	109.53	105.83	↓3.7	↓***3.37***	4.38	3.1	1.19	<0.1	INS

Table 5: Showing overall effect of trial drug on all Thyroid Parameters n=6

S. No	Thyroid Parameters	Mean score			% change	+/- SD	+/-SE	T	P	Result
		BT	AT	Diff						
1	T3	137.94	149.42	↑11.49	↑***8.33***	0.73	0.52	↑22.30	<0.001	HS
2	T4	8.05	9.23	↑1.18	↑***14.60***	1.00	0.71	↑1.67	<0.1	INS
3	TSH	10.01	9.98	↓0.04	↓***0.40***	6.59	4.66	0.01	<0.1	INS

DISCUSSION AND CONCLUSION

In science, it is essential to prove a concept with methods, prior to its acceptance as truth. Proving a concept requires an exhaustive study by which the hidden and silent facts are explored and logical interpretation of those facts are done to establish the truth as conclusion. This exhaustive study is Discussion, which is a crucial part of any research work.

Probable mode of Action of Guduchi:

Guduchi is rich in Tikta Rasa due to which it causes Agni Deepan and digests the Ama produced during the pathogenesis of Sthaulaya. The Jatragni when gets stimulated leads to stimulation of all Dhatvagnis starting from rasa till meda and these Dhatvagnis leads to digestion of Ahara Ansha in their own Srotas, finally causing

digestion of Ama. Similarly Medo agni also gets stimulated and digest the Apakva Meda, which leads Meda Shaya and thus Guduchi is able to decrease meda in body.Tikta rasa due to its Lekhan and Srotoshodhak Karma causes Lekhan of Meda accumulated in Medovaha srotas. In addition to this the Ruskha and Khara guna of Tikta rasa also supports the digestion of Kapha and Ama.

Thus only Tikta rasa alone due to its properties is able to stimulate Jathragni and subdues Meda.Alongwith this Guduchi has Ushna veerya which also supports the action of Tikta rasa. Due to Ushna Veerya it causes Vilyana of doshas accumulated in srotas and thus is also is able to stimulate Jathragni, digest Ama and subdues Meda. Not only this Ushna Veerya of Guduchi pacifies Vata which is a cause of Agnisandhushana in Sthaulya.Also the vipaka of Guduchi is Madhur which also prevents the aggravation of Vata, a factor for Agnisandhushana.Therefore it can be said that Guduchi is effective in Stahulyata.

Clinical study:

Commences with detailed description of aims and objectives, criteria for selection of patients, diagnostic criteria groups, criteria for assessment of the results. It follows the presentation of observations made and the results obtained along with statistical analysis.Among 30 patients, there are two groups A & B of 15 patients each, in which all subjective as well as objective parameters were analyzed and the overall results in subjective parameters are shown as in Group A 44.13%, in Group B 80.15% and overall result is 62.13%.So we can say that Guduchi Kwatha is more effective than Guduchi Sattva because active constituents of the drug are more in Kwatha form and also Kwatha gets absorbed more easily and quickly than the Sattva which has large amount of starch in it.

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